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Master Negative
Storage Number

PSt SNPaAg152

CONTENTS OF REEL 152

1) Export implement age, vol. 14
MNS# PSt SNPaAg152.1

2) Export implement age, vol. 15
MNS# PSt SNPaAg152.2

3) Dixon, Edmund Saul
A treatise on the history and management of ornamental and domestic poultry
MNS# PSt SNPaAg152.3

CONTENTS OF REEL 152 (CONTINUED)

4) Pennsylvania Department of Forests and Waters
   Forester's manual
   MNS# PSt SNPaAg152.4

Export implement age

Missing:

Volume 1

Volume 2

Volume 4, no. 2

Volume 5, no. 1

Volume 6, no. 2

Volume 15, no. 6

Title: Export implement age, vol. 14

Place of Publication: Philadelphia, PA

Copyright Date: 1906

Master Negative Storage Number: MNS# PSt SNPaAg152.1

<2115511> * Form:serial 2 Input:HHS Edit:FMD
008 ENT: 980806 TYP: d DT1: 1899 DT2: 1907 FRE: m LAN: eng
037 PSt SNPaAg0149.1-0152.2 $bPreservation Office, The Pennsylvania State University, Pattee Library, University Park, PA 16802-1805
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245 00 Export implement age $ban independent journal devoted exclusively to the export trade in agricultural machinery, pumps, wind mills, farm tools and supplies
260 Philadelphia, PA $bNolan Publishing Co. $c[1899]-1907
300 15 v. $bill. $c35 cm.
310 Monthly
362 0 [Vol. 1 (Sept. 1899)]-v. 15, no. 5 (Feb. 1907)
500 Subtitle varies
500 Text in English, Spanish, German and French
533 Microfilm $mv.3,no.1 (1900)-v.4,no.1 (1901),v.4,no.3 (1901)-v.4,no.6 (1901),v.5,no.2 (1901)-v.6,no.1 (1902),v.6,no.3 (1902)-v.15,no.5 (1907) $bUniversity Park, Pa. : $cPennsylvania State University $d1998 $e4 microfilm reels ; 35 mm. $f(USAIN state and local literature preservation project. Pennsylvania) $f(Pennsylvania agricultural literature on microfilm)
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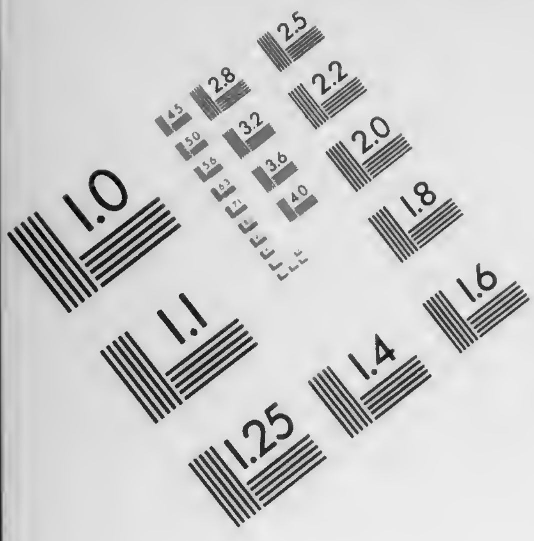
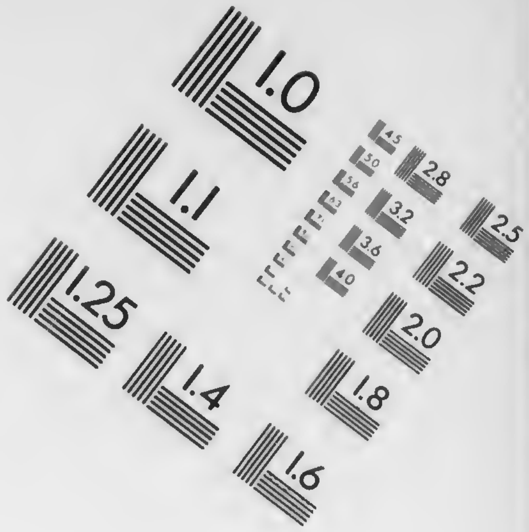

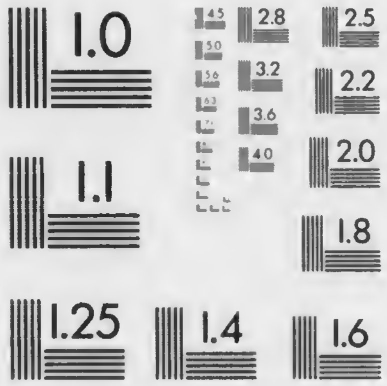

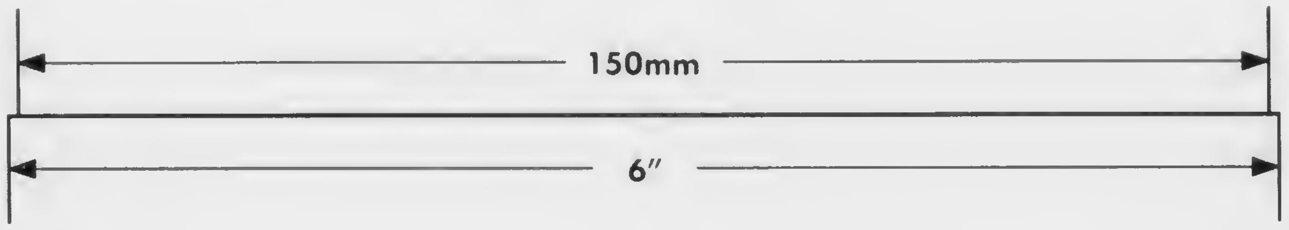

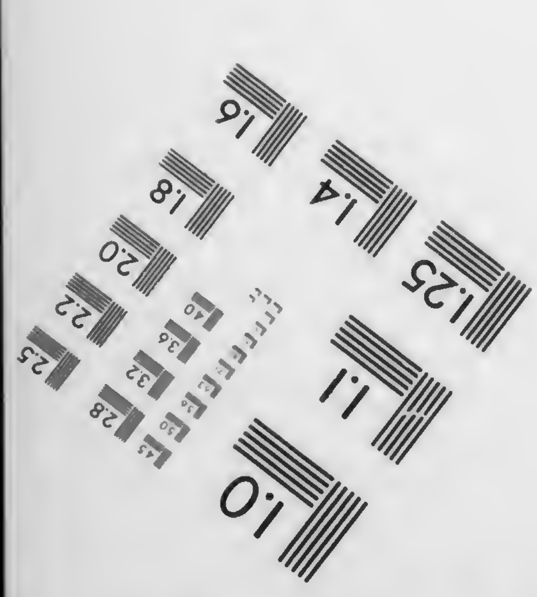
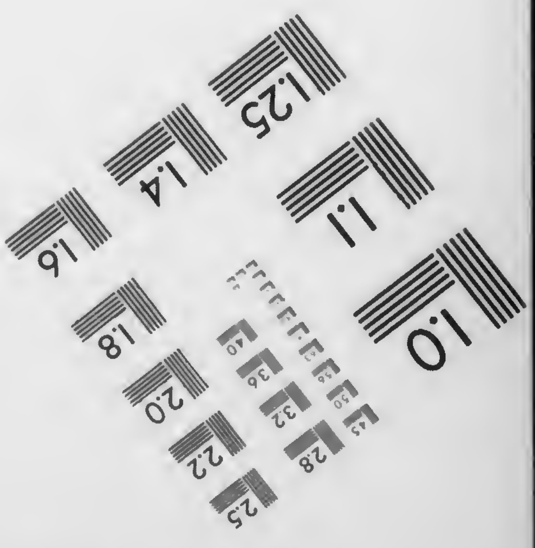

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Volume 14, 1906

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U. S. Department of Agriculture.

EXPORT IMPLEMENT AGE

A Monthly Magazine Devoted to American Agricultural
Machinery, Farm Supplies, Vehicles and Vehicle
Materials, Machine Tools, Hardware Specialties, Etc.

TEXTE FRANCAIS
Papier Rose

TEXTO ESPANOL
Papel Amarillo

DEUTSCHER TEXT
Blaues Papier

Vol. XIV. PHILADELPHIA, PA., U. S. A., APRIL, 1906. No. 1

MORGAN & WRIGHT Fabrikanten von
Gummiwaaren Bester Qualität

Automobil Radreifen, Fahrzeug Radreifen, Hufeisen Polster

Schlauche, Kautschukband, Thurmatten, Verpackungs Utensilien, Hebevorrichtungen, geripptes Mattenwerk, Petral-Maschinenbeutel, Knotenmatten, Ringe fur Rahmabsonderer, u. s. w.

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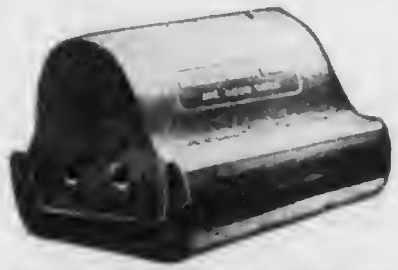
MORGAN & WRIGHT - - Chicago, U. S. A.
214 W. 47th Street, NEW YORK

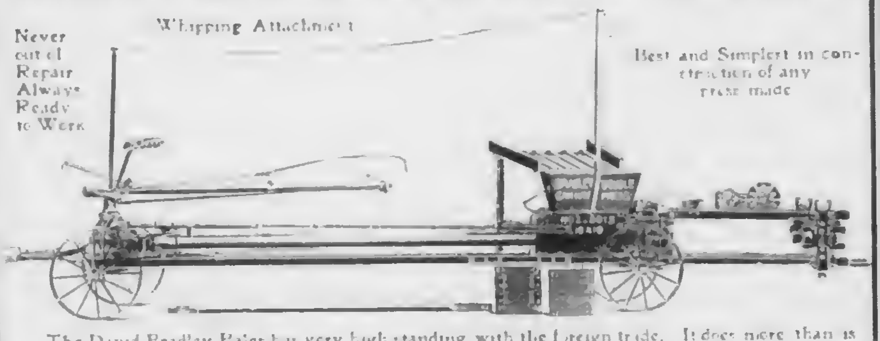
Hufeisen Polster



Radreifen fur Fahrzeuge—Solide und Polster. Fur Haspel jeder gewunschten Lange geliefert.

Klinker Automobilradreifen

DAVID BRADLEY ..Double Cam.. Steel Hay Press KNOWN THE WORLD OVER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Never out of Repair Always Ready to Work
Best and Simplest in construction of any press made

The David Bradley Baler has very high standing with the foreign trade. It does more than is claimed for it, and does perfect work under all conditions. Write for literature. We answer correspondence in any language.

La Prensa "David Bradley" de doble excentrica de acero para embalar Heno es bien conocida en todo el mundo. Jamas se descompone, y está siempre lista para el trabajo. Es la mejor y su construccion es mas sencilla que la ninguna otra prensa jamás fabricada. Tiene un accesorio para zurrar. La Embaladora "David Bradley" ocupa una alta posicion en el comercio extranjero. Hace más de lo que se le atribuye y su trabajo es perfecto bajo todas las condiciones. Escribasenos pidiendo nuestros impresos. Contestamos la correspondencia en cualquier idioma.

La Presse à Foin—à double came de "David Bradley" est connue dans le monde entier. Elle n'est jamais en reparations mais toujours au travail. Elle est la meilleure et la plus simple dans sa construction comparée à toute autre presse manufacturée. Elle est munie d'un secouent à capuchon. La Presse à Foin "David Bradley" a dejà une grande réputation dans le commerce etranger. Elle parfait plus qu'elle ne pretend et accomplit son travail sous toutes circonstances. Adressez nous pour prospectus circulaires etc. Nous repondons en toutes les langues.

Made by DAVID BRADLEY MFG. CO., - - BRADLEY, ILL., U. S. A.
Cable address, "YELDARB." Codes used: "A.B.C.," 4th and 5th editions, "A1," "Liebers" and "Our Own."

A Plow with Reversible Point and Wing

SOUTH BEND CHILLED PLOW CO.

No. 95

and for this reason a plow that is a rapid seller

The farmer appreciates it because it is always ready with a fresh cutting edge. The upper edge is always being sharpened while the lower one is being used. The matter of reversing them is very quick and simple—no wrench being required, and there is no necessity for turning the plow over.

We highly recommend this Plow for Clay, Gravel, Stone or a Hard Pan Soil

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South Bend Chilled Plow Co. SOUTH BEND INDIANA

Lawn Mowers

FOR HORSE
and HAND USE

Adapted for all markets
of the world.

Established
1870

CHADBORN & COLDWELL MFG. CO.

NEWBURGH
N. Y.
U. S. A.

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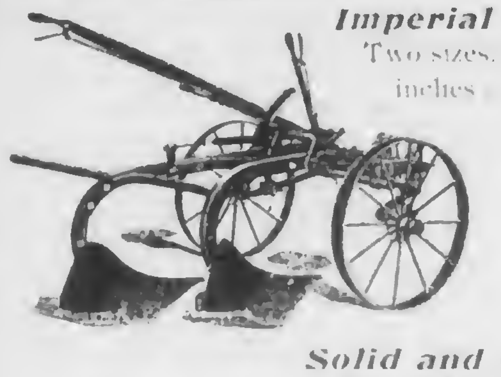
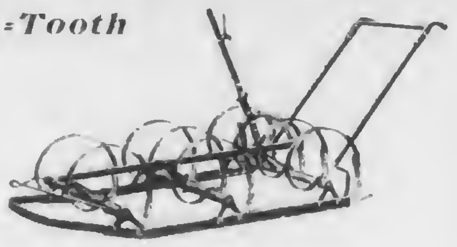
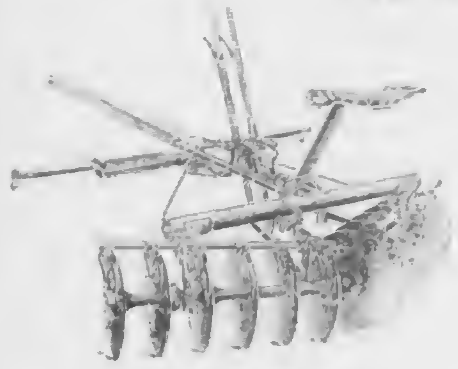


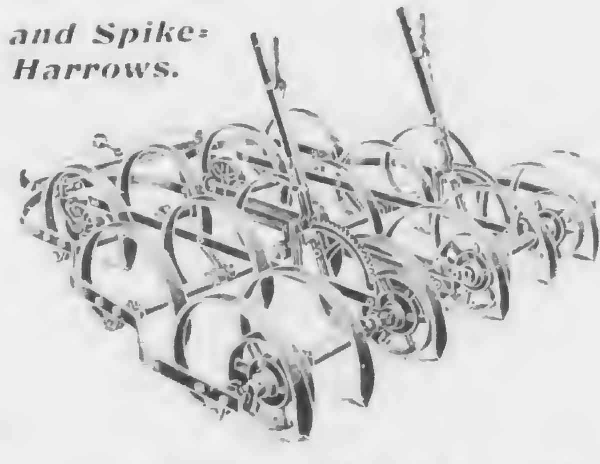
Imperial Stark Gang Plow
Two sizes, cutting 24 inches and 28 inches; all soft centre steel
Specially constructed for export trade



Imperial Spring-Tooth Cultivator
Specially designed for working in vineyards.



Solid and Cut-Out Disc Harrows.
Several sizes and styles

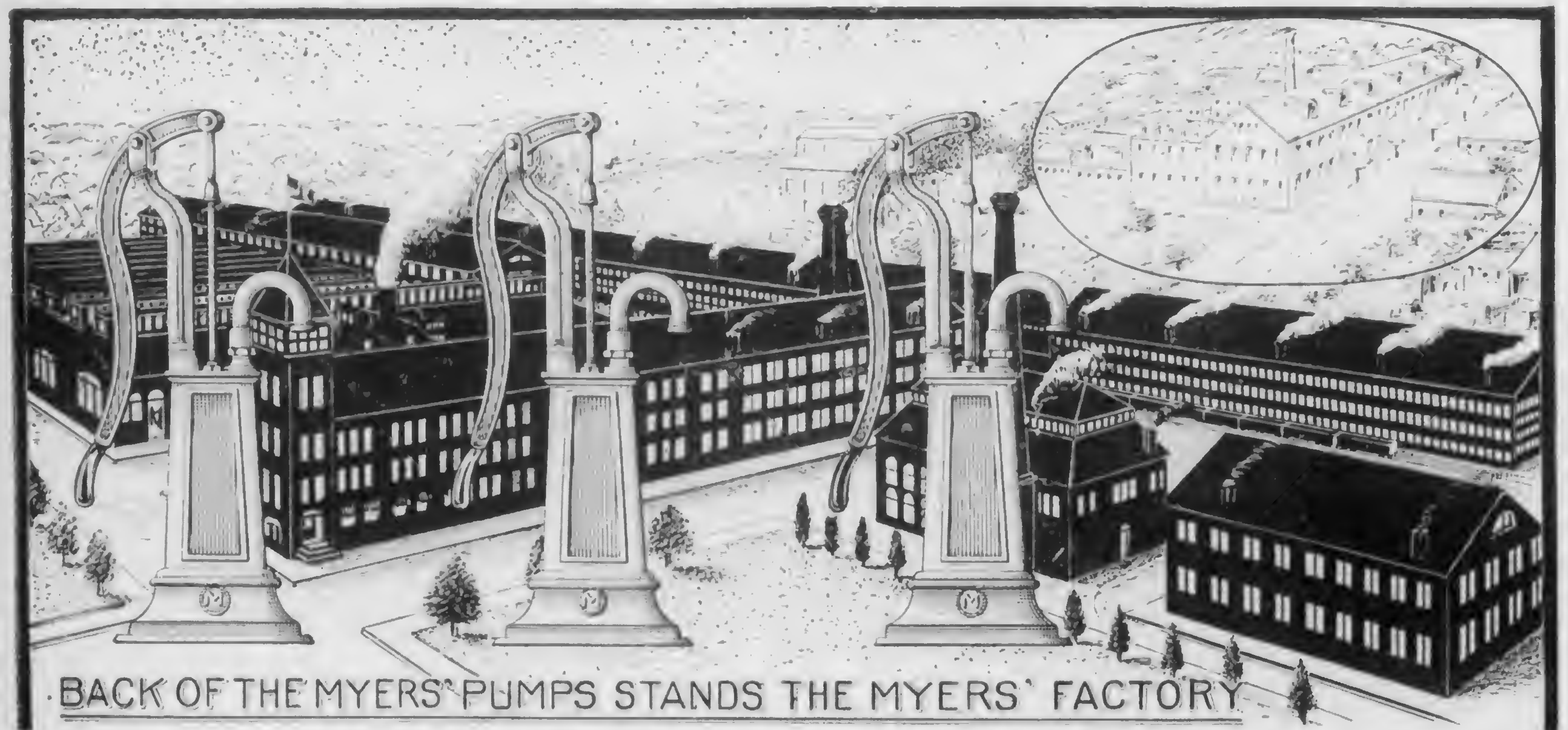


Spring and Spike-Tooth Harrows.

Full Line Single and Double Furrow Plows, Cultivators, Etc.

CATALOGUE, No. 104 Free on Application.

THE BUCHER & GIBBS PLOW CO. B-21 Produce Exchange, NEW YORK, N. Y., U. S. A.
Factory: CANTON, OHIO.


BACK OF THE MYERS' PUMPS STANDS THE MYERS' FACTORY

The largest factory in the United States devoted exclusively to the manufacture of *Pumps* and *Hay Tools;* a modern, up-to-date plant with perfect equipment, prepared to fill domestic or export orders of any magnitude promptly and intelligently. Best kind of Pumps for all Pumping Purposes. Best kind of Hay Tools of every description. ***MYERS PUMPS and MYERS HAY TOOLS are the First Choice of Progressive Dealers all over the civilized world.*** Highest award (Gold Medal) at St. Louis, Pan-American and Charleston Expositions

F. E. MYERS & BRO., Export Office, B 17-21 Produce Exchange, New York, U. S. A.
FACTORY: ASHLAND, OHIO

Directory for Buyers.

The names of firms given below, together with the goods mentioned, are arranged for the convenience of buyers. Their products are given in the English, French, Spanish and German languages. These establishments are among the leading ones in the United States, are strictly reliable, have extensive facilities and are prompt in transacting business. They fully understand the export trade and carefully look after all foreign orders. The EXPORT IMPLEMENT AGE is kept on file in their offices, and any mention of the journal will be an incentive to even greater promptness on their part in obliging you. Inquiries from foreign buyers desiring information relative to American agricultural machinery or implements addressed to them will be given careful and prompt attention. Write in any language you prefer.

Rèpertoire à l'Usage des Acheteurs

Les maisons ci-dessous et les produits mentionnés ont été classés dans cet ordre pour la commodité des acheteurs de langues anglaise, française, espagnole et allemande. Ces établissements sont parmi les principaux des Etats-Unis, ils sont absolument sérieux, ils possèdent de grandes facilités, sout prompts en affaires. Ils connaissent à fond le cemmerce d'exportation et donnent tous leurs soins à l'exécution des commandes qui leur viennent de l'étranger. Ils conservent une collection de l'EXPORT IMPLEMENT AGE dans leurs bureaux, et la simple mention de ce journal stimulera davantage encore, si possible, leur zèle et leur promptitude à obliger leurs clients. L'EXPORT IMPLEMENT AGE, de son côté, donnera une prompte attention aux demandes de ronseignements sur machines et instrumenta agricoles américains, que peuvent lui adresser les acheteurs de l'étranger. Ecrire dans la langue que l'on préfere.

Directorio para los Compradores.

Los nombres de los artículos que fabrican las firmas ó casas mencionadas á continuación se dan, para conveniencia de los compradores, en los idiomas inglés, francés, español y alemán. Esos establecimientos, que se cuentan entre los principales de los Estados Unidos, están completamente acreditados, son dignos de toda confianza y tienen las mayores facilidades para ejecutar y despachar con prontitud todos sus negocios. Conocen á fondo el comercio de exportación y atienden con el mayor esmero à todos los pedidos que reciben del extranjero. Los números del EXPORT IMPLEMENT AGE se coleccionan en sus oficinas, y toda referencia á esta revista es un incentivo para atender con mayor prontitud aun á vuestros requerimientos. Todos los informes que pidan los compradores del extranjero serán suministrados á la mayor brevedad por esos fabricantes sobre la maquinaria agrícola é instrumentos de labranza americanos. Escribidles en cualquier idioma que prefiráis.

Firmen-Verzeichnis für Käufer.

Die Erzeugnisse der unten genannten Firmen sind für die Bequemlichkeit ausländischer Käufer in englischer, französischer spanischer und deutscher, Sprache hier wiedergegeben. Genannte Etablissemente gehören zu den bedeutendsten in den Vereinigten Staaten; sie sind in jeder Weise zuverlässig, besitzen ausgedehnte Facilitäten und erfreuen sich eines ehrenvollen Rufes. Alle von ihnen unternommenen Geschäftstransaktionen werden in promptester Weise zur Ausführung gebracht. Jedes hierin genannte Haus ist mit dem Exporthandel wohl vertraut und um auswärtige Aufträge eifrig bemüht. Das EXPORT IMPLEMENT AGE wird von all diesen Firmen gelesen, dient ihnen sozusagen als Informations-Register und dürfte somit eine Angabe dieses Journals bei event. Waarenbestellung nur zur Anregung grösserer Promptheit dienen, um p.p. Käufern in bestmöglicher Weise entgegenkommen zu können. Jede auswärtige Anfrage hinsichtlich amerikanischer landwirthschaftlicher Maschinen und Geräthe wird nicht allein prompte, sondern auch stets sorgfältige Aufmerksamkeit erhalten. Interessenten können sich jeder beliebigen Sprache zur Korrespondenz bedienen.

Ambulances
Carros de hospitál
Krankenwägen (Ambulanzen)

Baling Presses (Hay, Straw, Etc.)
Presses à foin, paille, etc.
Prensas de Embalar (Heno, Paja, etc.)
Ballen Pressen (für Heu, Stroh, u. s. w.)

Bradley Mfg. Co., David, Bradley, Ill. 1
Collins Plow Co., Quincy, Ill. 29
Ertel Co., George, Quincy, Ill. 6

Beet Implements (Planting, Cultivating and Harvesting)
Betteraves (Instruments pour la culture des)
Instrumentos para el Cultivo de la Remolacha (Sembradoras, Cultivadoras y Cosechadoras)
Rübengeräte (zum Pflanzen, Pflügen und Ernten)

Moline Plow Co., Moline, Ill. 6

Binders, Self (Wheat, Rye, Oats, etc.)
Lieuses Automatiques (Blé, Orge, Avoine, etc.)
Agavilladoras Automáticas (Trigo, centeno avena, etc.)
Selbstbindemaschinen (für Weizen, Roggen, Hafer u. s. w.

Boilers.
Chaudières.
Calderas.
Kessel.

Leffel & Co., James, Springfield, Ohio 29

Bolts and Nuts.
Boulons et écrous.
Pernos y Tuercas.
Bolzen und Muttern (Mutterbolzen)

Columbus Bolt Works, Columbus, Ohio 36

Brakes (Vehicle)
Retrancas (Vehículo)
Frein (de Voiture)
Bremsen (für Fahrzeuge)

Potter Co., The Morgan, Fishkill on Hudson, N. Y. . . 8

Carriages
Voitures
Carruajes
Kaleschen und Wagen

Dapson & Wolf, Oneida, N. Y. 3
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Carriage Cloth
Wagentuch
Paño de carruaje
Drap de Voiture

Fairfield Rubber Co., The, Fairfield, Conn. 5

Carriage Materials
Articles pour voitures
Materials for Carriages
Wagenmaterial

Carts (Riding)
Charrettes (à siège)
Carretones (de Montar)
Frachtkarren (Reitkarren)

Dapson & Wolf Oneida, N. Y. 8

Cider and Wine Presses
Pressoirs à vin et à cidre
Prensas para Hacer Cidra y Vino
Kelterapparate für Wein und Apfelwein

Lansing Wheelbarrow Co., Lansing, Mich. 29

Clothes Washing Machines
Linge (machines à laver le)
Máquinas de Savar Ropa
Wäsche Waschmaschinen

"1900" Washer Co., Binghamton, N. Y. 35

Coal Cars
Charbon (wagons pour)
Carros para Carbón de Piedra
Kohlenwaggons

Lansing Wheelbarrow Co., Lansing, Mich. 29

Coal Shutes
Charbon (Dalles à)
Canales para Descargar Carbón de Piedra
Kohlen Lade-Rinnen

Lansing Wheelbarrow Co., Lansing, Mich. 29

Corn Crushers
Mais (Concasseurs de)
Trituradoras de Maiz
Mais Zerquetschmaschinen

Sproul, Waldron & Co., Muncy, Pa. 8

Corn Harvesters
Mais (Moissonneuses de)
Cosechadoras de Maiz
Mais Erntemaschinen

Standard Harrow Co., Utica, N. Y. 8

Corn Huskers and Shredders
Mais (Instruments à enlever et à déchirer les bractées du)
Desgranadoras y Picadoras de Maiz
Mais Enthülsemaschinen und Auswerfapparate

Bradley Mfg. Co., David, Bradley, Ill. 1

Corn Planters (Hand)
Mais (Semoirs de, à main)
Sembradoras de Maiz (A Mano)
Maispflanzer (für Handbetrieb)

Ohio Cultivator Co., The, Bellevue, Ohio 31

Corn Planters (Horse)
Mais (Semoirs de, à cheval)
Sembradoras de Maiz (para Caballo)
Mais Pflanzmaschinen (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill. . . . .
Moline Plow Co., Moline, Ill. . . . .

Corn Shellers (Hand)
Mais (Egrenoirs de, à main)
Descascaradoras de Maiz (de Mano)
Mais Pflanzmaschinen (für Handbetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Corn Shellers (Power)
Mais (Egrenoirs de), á énergie mecanique
Descascaradoras de Maiz (para Fuerza mecánica)
Mais Pflanzmaschinen für Pferdebetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Cotton Planters
Coton (Semoirs de)
Sembradoras de Algodón
Baumwoll Pflanzmaschinen

Ohio Cultivator Co., The, Bellevue, Ohio	36

Cultivating Machinery (Hand and Garden)
Culture du sol (Intruments pour la), á main et pour le jardin
Maquinaria Cultivadora (de Mano y para Huerta)
Garten Pflüge (für Handbetrieb)

Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Cultivating Machinery (Horse and Field)
Culture du sol (Instruments pour la), à cheval et pour le champ
Maqninaria Cultivadora (de Caballo y para el Campo)
Bodenkultur Geräte (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill.	1
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Engines and Boilers (Stationary)
Machines à vapeur et Chaudières (fixes)
Máquinas de Vapor y Calderas (Fijas)
Maschinen und Kessel (Stationär)

Leffel & Co., James, Springfield, Ohio	29

Engines (Traction and Portable)
Machines à vapeur (Pour la traction et transportables)
Máquinas (De Tracción y Portátiles)
Traktions- oder Zugmaschinen und Lokomobilen

Feed and Ensilage Cutters
Coupe-aliments, coupe-ensilage
Cortadora de Forraje y Ensilaje
Futter- und Grünfutter (Ensilage) Schneidemaschinen

Marseilles Mfg. Co., Marseilles, Ill.	4
Silver Mfg. Co., Salem Ohio	35

Feed Mills
Moulins pour aliments
Molinos de Frorraje ó Pienso
Futtermühlen

Sprout, Waldron & Co., Muncy, Pa.	3

Files (Letter and Card)
Systémes de classification (lettres et cartes)
Guarda-Cartas y Tarjetas
Skripturenordner (für Briefe und Karten)

Forgings (Carriage)
Piéces forgées (Voiture)
Forjaduras (para carruajes)
Schmiedereien (Kaleschen-)

Gardening Tools (Hand)
Jardinage (Outils de) à main
Herramientas de Hortelano (de Mano)
Gärtnerei Handwerkzeug

Grain Cleaning Machinery (Rice, Coffee, Grain, Etc.)
Grains (Machines à nettoyer les): riz, café, grain, etc.
Maquinaria pare Limpiar Granos (Arroz, Café, Granos, Etc.)
Getreide Reinigungsmaschinen (für Reis, Kaffee, Korn, u. s. w.)

Sprout, Waldron & Co., Muncy, Pa.	5

Grain Drills
Grains (Semoirs de)
Sembradoras de Granos
Drillmaschinen

Monitor Drill Co., Minneapolis, Minn.	35
Superior Drill Co., Springfield, Ohio	5

Grain Grinding Mills
Grains (Moulins à moudre les)
Molinos para Granos
Schrotmühlen

Flint & Walling Mfg. Co., Kendallville, Ind.	3
Kelly Co., The O. S., Springfield, Ohio	36
Marseilles Mfg. Co., Marseilles, Ill.	4
Sprout, Waldron & Co., Muncy, Pa.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Hand Carts (Push)
Charrettes à bras
Carretillas de Mano (de Empuje)
Hand-Schiebekarren

Bradley Mfg. Co., David, Bradley, Ill.	1
Deming Co., The, Salem, Ohio	35
Lansing Wheelbarrow Co., Lansing, Mich.	29

Hand Tools (Shovels, Rakes, Hoes, Scythes, Forks, Etc.)
Outils à main (Pelles, râteaux, houes, faux, fourches, etc.)
Herramientas de Mano (Palas, Rastrillos, Azadones, Guadañas. Horquillas, etc.)
Handwerkzeug (Schaufeln, Rechen, Haken, Sensen, Gabeln, u. s. w.

Harrows (Disc, Spring-Tooth and Spike-Tooth)
Herses (à disques, à dents élastiques, à dents droites)
Mielgas ó Rastrillos (de Disco, con Dientes de Resorte y Otros)
Eggen (mit Scheiben-, Federzahn- und Speichenzahn-Vorrichtung)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Loaders
Foin (Chargeuses de)
Cargadoras de Heno
Heu Auflader

Marseilles Mfg. Co., Marseilles, Ill.	4

Hay Presses
Foin (Presses à)
Prensas para Heno
Heu Pressen

Bradley Mfg. Co., David, Bradley, Ill.	1
Collins Plow Co., Quincy, Ill.	29
Ertel Co., George, Quincy, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Rakes
Foin (Râteaux à)
Rastros para Heno
Heu Rechen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6

Hay Tools (For Handling Hay)
Foin (Outils pour la manipulation du)
Herramientas para Heno (para Manipular el Heno)
Heubearbeitungs-Apparate und Werkzeuge

Myers. F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Hods (Steel and Wood)
Auges (Acier et bois)
Artesas de Cargar (de Acero y de Madera)
Tünchkübel (Mörteltröge, aus Stahl und Holz)

Lansing Wheelbarrow Co., Lansing, Mich.	29

Implement Parts (Rake, Teeth, Knife Sections, Etc.)
Pièces de rechange (Dents de râteaux, conteaux de faucheuses, etc.)
Partes de Instrumentos (Dientes de Rastrillo, Secciones de Cuchilla, Etc.)
Theile von Landwirthschaftsgeräthen (Rechenzähne, Messertheile, u. s. w.)

Incubators
Conveuses artificielles
Incubadoras
Brutmaschinen (Inkubatoren)

Ertel Co., George, Quincy, Ill.	6

Lawn Mowers
Tondeuses de gazon
Segadoras ó Cortadoras de Cęsped
Rasen Mähmaschinen

Clipper Lawn Mower Co., Dixon, Ill	5
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y	1

Leather (Imitation)
Leder (Imitation)
Cuero (Imitación)
Cuir (Imitation)

Fairfield Rubber Co., The, Fairfield, Conn.	5

Machine Tools
Machines-outils
Herramientas Mecánicas
Maschinen-Werkzeug

Silver Mfg. Co., Salem, Ohio	35

Mowers.
Faucheuses.
Segadoras.
Mähmaschinen.

Mills (Corn and Hominy)
Moulins (pour maïs et bouilie)
Molinos (para Moler Maiz Fino y Grueso)
Mühlen (für Getreide und indianisches Reis, Hominy)

Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Oil Cloth
Toile Cirée
Wachstuch

Plows (Walking, Riding and Disc)
Charrues (ordinaires, à siège, à disques)
Arados (de Caminar, de Moutar y de Disco)
Pflüge (Geh-, Fahr- und Scheibenpflüge)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
South Bend Chilled Plow Works, South Bend, Ind.	1
Standard Harrow Co., Utica, N. Y.	3

Potato Machinery
Pommes de terre (Machines pour la culture des)
Maquinaria para Patatas
Kartoffel-Maschinen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Pumps, Hand and Power (Lift, Force and Spray)
Pompes, à main, et à énergie mécanique (Pompes aspirantes, foulantes, pulvérisatrices)
Bompas de Mano y para Fuerza Mecánica (Aspirantes, de Forzar y de Rociar)
Pumpen, Hand- und Kraftpumpen (Hebe-, Druck- und Besprengungs-Pumpen)

Deming Co., The, Salem, Ohio	35
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Reapers.
Moissonneuses.
Cosechadoras
Getreide-Mähmaschinen.

Rollers (Field or Road)
Rouleaux (pour champs et pour routes)
Rodillos (para Campo y para Caminos)
Feld- und Weg-Walzen

Bradley Mfg. Co., David, Bradley, Ill.	1
Lansing Wheelbarrow Co., Lansing, Mich.	29
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Rubber Goods
Articles de caoutchouc
Articulos de Caucho
Gummiwaaren

Rubber Tires
Gummireifen
Bandes de roues en caoutchouc
Llantas de Caucho para Ruedas

Morgan & Wright, Chicago, Ill	1

Scrapers (Road)
Ratissoires (pour routes)
Dragas (para Caminos)
Strassen Scharr-Maschinen (Strassen-Ebener)

Standard Harrow Co., Utica, N. Y.	3

Seeders, Broadcast (Grain and Grass)
Semoirs pour semer à la volée (Grain et graminées)
Máquinas de Sembrar Semillas al Vuelo (Granos y Semilla de Yerbas)
Breitsämaschinen (für Getreide und Gras)

Sharpeners and Grinders
Machines à remoudre et à aiguiser
Afiladoras y Amoladoras
Schärfe- und Schleif-Apparate

Sleighs
Traineaux
Trineos
Schlitten

Dapson & Wolf, Oneida, N. Y.	

Sprayers and Nozzles
Instruments d'arrosage
Rociadoras y Boqnereles
Besprengungs-Spritzen und Uebernasen

Deming Co., The, Salem, Ohio	35
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
Standard Harrow Co., Utica, N. Y.	3

Stalk Cutters
Coupe-chaume
Cortadoras de Tallos
Stengel Abschneider

Street Sprinklers
Arrosage des rues (Tonneaux pour l')
Regadoras de Calle
Strassen Bespreng-Wagen

Studebaker Bros. Mfg. Co., South Bend, Ind.	36

Sugar Cultivating Implements
Sucre (Instruments pour la culture de la canne à)
Instrumentos para el Cultivo Azucarero
Zucker-Anbau Geräthe

Threshing Machinery
Machines à battre
Maquinaria de Trillar
Dresch Maschinen

Tire Setters
Machines à fixer les bandes de roues
Máquinas de Poner Llantas
Maschinen zum Aufsetzen von Gummireifen

Standard Tire Setter Co., Keokuk, Iowa	36

Tread Powers (Horse, Dog, Sheep, Etc.)
Machines à utiliser l'énergie de la marche (Cheval, Chien, Mouton, etc.)
Motores de Pisada (para Caballo, Perro, Carnero, etc.)
Kraft-Tretmaschinen (Pferde, Hunde, Schafe, u. s. w.)

Trucks (Hand Warehouse)
Trucs (Emmagasinage à bras)
Carretillas de Mano para almacén
Transport Handwagen (für Waarenhäuser)

Lansing Wheelbarrow Co. Lansing, Mich.	29

Wagons (Business)
Charettes (d'affaires)
Carros (para negocios)
Wägen (Geschäftswägen)

Wagons and Buck-Wagons
Charrettes et charrettes à lessive
Carretones y Carretas
Wägen und Bockwägen

Ohio Valley Wagon Co., The, Marietta, Ohio . . . . . .

Wagons and Carts (Farm)
Wagonnets et charrettes (Ferme)
Carretones y Carretas (para Hacienda)
Landwirthschaftliche Wagen und Karren

Lansing Wheelbarrow Co., Lansing, Mich. 29
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Weeders
Sarcloirs mécaniques
Desyerbadoras
Jäte Maschinen

Standard Harrow Co., Utica, N. Y. 3

Well Tools and Drilling Machinery
Outils pour puits et machines à forer
Instrumentos para Abrir Pozos y Maquinaria para Horadar
Brunnen-Werkzeug und Bohr-Maschinen

Flint & Walling Mfg. Co., Kendallville, Ind. 3

Wheelbarrows
Brouettes
Carretillas
Schiebekarren

Lansing Wheelbarrow Co., Lansing, Mich. 29

Wheels (Carriage)
Roues (Voiture)
Ruedas (Carruaje)
Räder (Kaleschen und Wagen)

.Vneels and Wheel Materials
Roues et articles pour roues
Ruedas y Materiales para Ruedas
Räder und Rädermaterialien

Windmills (Towers and Tanks)
Moulins à vent (Tours et réservoirs)
Molinos de Viento (Torres y Tanques)
Windmühlen (Thurm- und Bütten)

Flint & Walling Mfg. Co., Kendallville, Ind. 3
Marseilles Mfg. Co., Marseilles, Ill. 4
U. S. Wind Engine and Pump Co., Batavia, Ill. 31

Wood Sawing Machinery
Bois (Machines à scierie)
Maquinaria para Aserar Madera
Holzsäge-Maschinen

Marseilles Mfg. Co., Marseilles, Ill. 4
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Leffel & Co., James, Springfield, Ohio 29
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Moline Plow Co., Moline, Ill. 6
Monitor Drill Co., Minneapolis, Minn. 35
Morgan & Wright, Chicago, Ill. 1
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"1900" Washer Co., Binghamton, N. Y. 35
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Standard Harrow Co., The, Utica, N. Y. 3
Standard Tire Setter Co., Keokuk, Iowa 35
Studebaker Bros. Mfg. Co., South Bend, Ind. . . . 36
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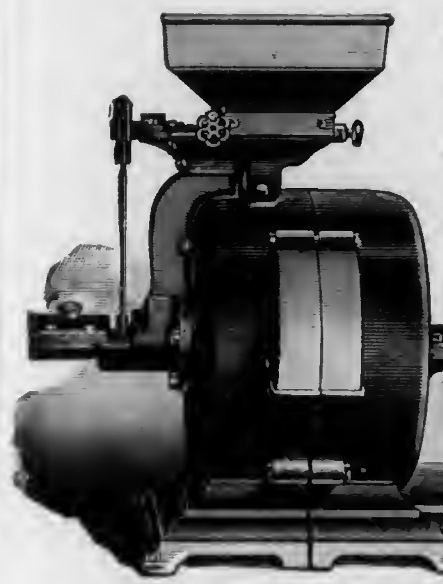


Machinery for Grinding all Kinds of Grain

Machines à moudre tous genres de grains

Maquinaria para moler todas glase de granos

Maschinerie zum Mahlen aller Getreidesorten

Write for one of our booklets which gives a full description of French Burr and Attrition, Feed and Meal Mills, Cotton Seed and Linseed Oil Cake Mills, Emery Rock Mills, Cotton, Ear and Ore Crushers, Magnetic Separators, Corn Shellers, etc.

Ecrivez pour un pamphlet contenant description détaillée de moulins à meules de France et à frottement, de moulins pour grains de cotton et de tourteaux de lin, de moulins à pierre d'émeri, de broyeurs d'épis et de minérais, de moulins magnétiques, d'écosseurs, etc.

Escríbasenos pidiendo uno de nuestros libritos, en que se da una completa descripción de nuestros Molinos de Piedra Francesa y de Roce, para Pienso y para Harina, Molinos de Semillas de Algodón, y para moler Tortas de Aceite de Semillas de Linaza, Molinos para Roca de Esmeril, Trituradoras de Algodón, Mazorcas y Minerales, Separedoras Magnéticas, Desgranadoras de Maiz, etc.

Man verlange eines unserer Büchlein, das volle Beschreibung unserer französischen Mahlsteine und Reibevorrichtung enthält, wie auch aller Futter-Vorrichtungen, Mehl-Mühlen, Baumwollensaamen- und Leinölsaamen Kuchen-Mühlen, Schmirgel-Bergmühlen, Baumwollen-, Aehren- und Erzzerstückelungs-Maschinen, magnetische Separatoren, Korn-Enthülsemaschinen, u. s. w.

SPROUT, WALDRON & CO.

Drawer M. MUNCY, PA., U. S. A.

The Standard Harrow Co.

UTICA, N. Y., U. S. A.

ABERDEEN, SR. SPRING-TOOTH HARROW

Unequalled Strength

No Clogging

Reversible Points on Teeth

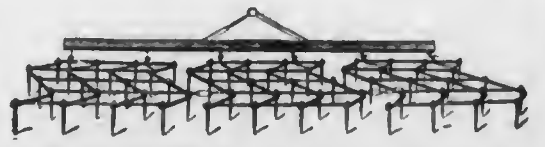
THE STANDARD LINE includes one and two-section Spring-Tooth Harrows and all styles and sizes of Spike-tooth and Disc Harrows, Cultivating Implements, Potato Harvesters, Potato Sprayers, etc., and is one of the most favorably known lines in the leading agricultural countries.

We guarantee prompt service for all export orders. Our factory is only five hours' ride from New York City.

WRITE IN YOUR OWN LANGUAGE FOR CATALOGUE F

ZIG ZAG STEEL SPIKE-TOOTH HARROW

20-Tooth Sections
½-Inch Teeth



EASY RIDING

This two-wheeler is our leading specialty for export.

We equip it with **RUBBER TIRES**, if desired, put on with two wires. The work, like the job itself, is sold under our positive guarantee.

LET US SEND YOU THE PRICES

Dapson & Wolf

ONEIDA, NEW YORK, U. S. A.

WHOLESALE MAKERS OF

FINE CARRIAGES

POTTER'S SPRING BRAKE BLOCKS...

Very substantial. Over 25,000 sets in use throughout the United States. We make them for Steel Tires, and they are especially adapted for Rubber Tires.

Will Not Injure Rubber Tire a Particle

We solicit your correspondence

The Morgan Potter Company

FISHKILL-ON-HUDSON, N. Y., U. S. A.

A Windmill that does satisfactory work naturally is the one you want. The "STAR" is the one that pleases. Our booklets in English, German, French and Spanish tell all about

"STAR" WINDMILLS

designed for the heavy and varied work required of them abroad. The "STAR" is built in all sizes, thoroughly galvanized, has ball bearings and is the easiest running Mill made.

"STAR" PUMPING MILL

For many years we have been exporting Windmills and know what is needed to meet all requirements and please our foreign friends. We understand how these goods should be packed for safe delivery, and the packing receives our most careful attention. With all the required parts at hand and properly fitted it facilitates the assembling and erecting of the Mills.

We build **Hand and Windmill Pumps** of various designs all sizes of **Pine, Cypress and Galvanized Steel Tanks, Galvanized Steel Towers** any height, **Power Windmills** for grinding feed and running light machinery and **Steel Substructures** all heights, to support Tanks of any capacity.

CORRESPONDENCE INVITED

FLINT & WALLING MFG. CO. KENDALLVILLE Indiana, U. S. A.

New York Office, 96 Wall Street, New York, U. S. A.

Cable Address, "STAR," Kendallville, Ind. Codes "Lieber," "A B C, 4th edition," "Western Union" and "Private."

Wagons (Business)
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Carros (para negocios)
Wägen (Geschäftswägen)

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Studebaker Bros. Mfg. Co., South Bend, Ind. 36

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Sarcloirs mécaniques
Desyerbadoras
Jäte Maschinen

Standard Harrow Co., Utica, N. Y. 3

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Brunnen-Werkzeug und Bohr-Maschinen

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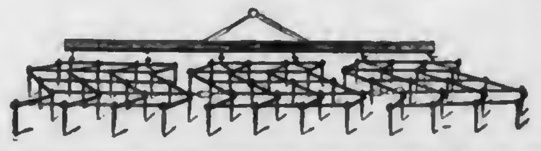
½-Inch Teeth



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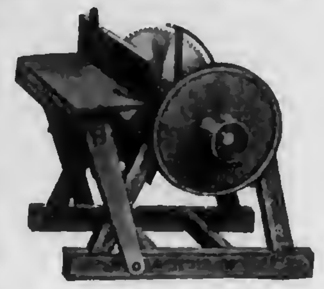
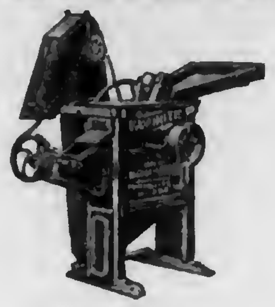
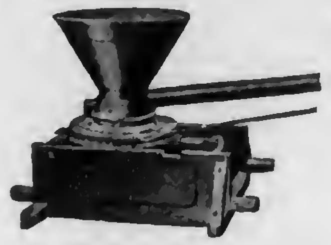


WOOD SAWS.
Steel or wood frames.



TWO HOLE HAND
CORN SHELLER.



FEED GRINDERS
Sweep or geared.

HAND SHELLER

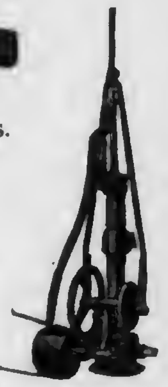
FARM FANNING MILLS.

HORSE POWERS.
1 to 12-horse

SPEED JACKS.

NEW PROCESS DUSTLESS CYLINDER CORN SHELLER
For husked or unhusked corn, made in three sizes, capacities ranging from 400 to 1,200 bushels per hour.

CYCLONE COMBINATION FORCE FEED CORN SHELLER
All sizes and styles for horse power or engine.



PUMPING JACKS

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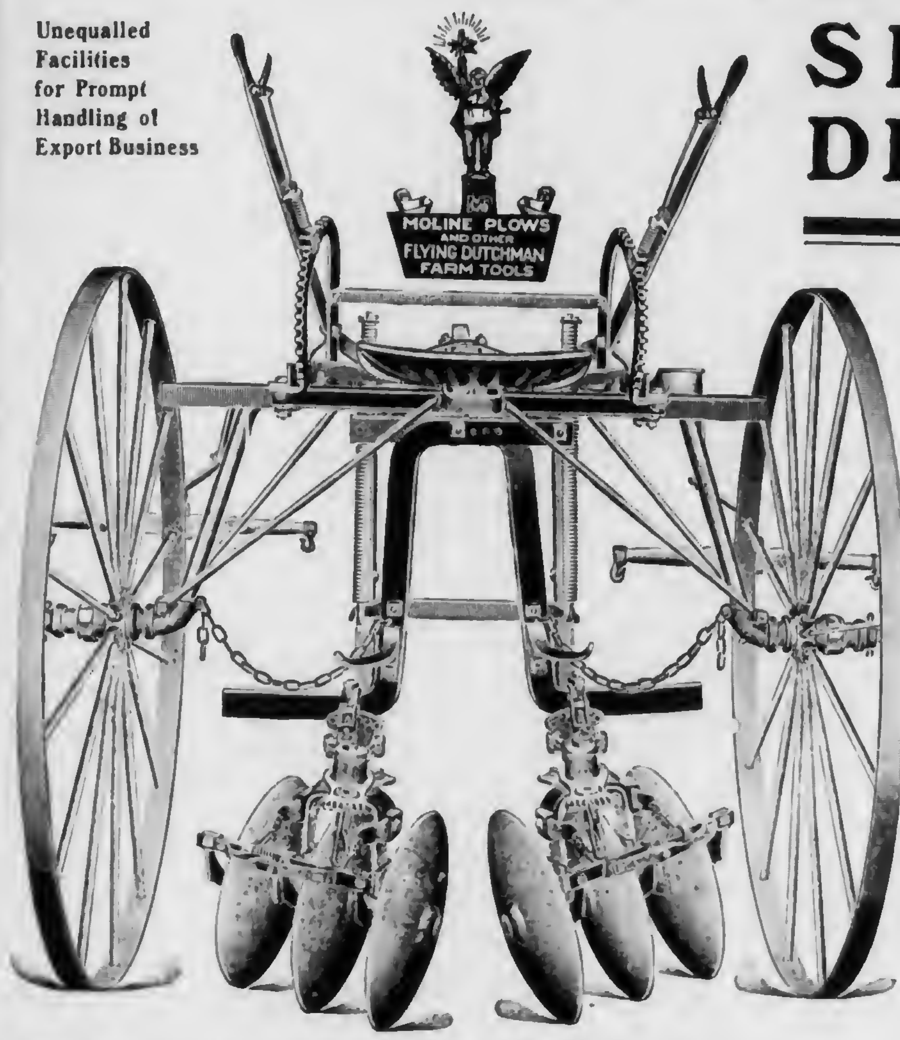

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14 x 18 Baler	2,650 (1,457 Kilos)	3,700	115 cubic feet	$215.25 (£44.16.10)
16 x 18 Baler	2,775 (1,526 Kilos)	3,800	171 cubic feet	218.00 (£45. 8. 4)
17 x 22 Baler	2,975 (1,636 Kilos)	4,000	120 cubic feet	221.50 (£46. 3. 0)

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Prix de nos presses "Gem" à cercle entier, mises en wagon à New York et convenablement emballées pour l'exportation:

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Presse 14 x 18	2,650 (1,457 kilos)	3,700	115 pieds cubes	$215.25 (£44.16.10)
Presse 16 x 18	2,775 (1,526 kilos)	3,800	171 pieds cubes	218.00 (£45. 8. 4)
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Prensa 14 x 18	2,650 (1,457 Kilos)	3,700	115 piés cúbicos	$215.25 (£44.16.10)
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16 x 18 Presse	2,775 (1,526 Kilo)	3,800	171 Kubikfuss	218.00 (£45. 8. 4)
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EXPORT IMPLEMENT AGE

Vol. XIV. Philadelphia, Pa., U. S. A., April, 1906. No. 1.

American Trade with Europe

Two-thirds of American exports last year went to Europe, and one-half of American imports came from Europe; which left a balance of trade of about 16 per cent. in our favor.

In six years the exports of the United States have averaged a trifle over one billion dollars' worth of goods per annum, as compared with something less than half a billion dollars' worth to the rest of the world.

Notwithstanding the large volume of our exports to Europe last year—$239,000,000 of manufactures and $782,000,000 of food and manufacturers' materials — the percentage thereof to the total was the lowest for any year since the Civil War.

During the twenty years, 1866-1885, the percentage of our exports to Europe averaged 80 per cent. of the total. From 80 per cent. in 1885 there was a decline to 77 per cent. in 1895, and a drop to 67 per cent. in 1905.

The fact is, the United States is becoming more cosmopolitan in its tarde, and is developing rapidly in its shipments to Canada, the Orient, Latin America and the various Pacific markets.

Our exports to Asia and Oceania, which per cent. of the total in 1865, under reciprocity, to as low as 8 per cent. in 1880, after repeal of reciprocity, have recovered until they amount to 16 per cent. of the total exports.

Our exports to Asia and Oceanica, which in 1880 were only 2 per cent. of the total, 4 per cent. in 1890 and 7½ per cent. in 1900, exceeded 10 per cent. of the total exports in 1905, and will easily approximate 20 per cent. of the total inside of ten years. That this estimate is conservative is apparent in the fact, that American exports to Asia alone have risen from $55,000,000 in 1903 to $136,000,000 in 1905, a net gain of $80,000,000, or nearly 150 per cent. in two years.

The percentage of our importations from Europe is also on the decline. The principal reason for this is that our demands for imports in recent years are more largely for food stuffs and raw materials which come from new countries, instead of manufactured goods from the Old World. Tropical and sub-tropical products are in special demand, such as tea, raw silk, and spices from Asia, sugar, coffee, and fibres from Oceania, and like products and fruits from Latin America. Such imports reached a value of a little over $200,000,000 in 1885, $300,000,000 in 1895, and over $500,000,000 in 1905.

One of the marked effects of a decline in the percentage of our foreign trade with Europe is the development of the commerce passing through our Pacific, Gulf, and Northern and Southern border ports, as compared with the former trade monopoly of the Atlantic ports.

For example, exports from Atlantic ports dropped from $1,007,000,000 in 1900 to $978,000,000 in 1905; whereas, exports from Gulf ports increased 25 per cent., while from Northern border ports the increase was 55 per cent., and from Pacific ports 65 per cent.

In short, Pacific, Gulf and border ports, which handled only 25 per cent. of the country's exports in 1895 and 30 per cent. in 1900, reported for twelve months ending with December 31, 1905, as high as 40 per cent. of the aggregate export trade; whereas the exports from Atlantic ports dropped from 75 per cent. of the total in 1895 to 60 per cent. in 1905.

Five years of further development of American commerce with Asia, Canada, and Latin America will likely see one-half of the total handled outside of Atlantic ports.—*Commercial West.*

One of many Beautiful Drives in one of many Beautiful Winter Resorts of the Southern Coast.

China's Awakening

By William Jennings Bryan in *The Commoner*

In what I have said of the Chinese government, system of education, religion and superstitions, I have referred to the nation as it has been for some twenty centuries—chained to tradition, stagnant, asleep. Society was stratified; those in power seemed to have no higher aspiration than to live upon the labor of the masses, and the masses seemed to entertain no thought of emancipation. The life of the people was occupied with ceremony, but there was no genuine fellowship or sympathetic connection between them, outside of the family tie, and even the family was likely to be a storm center because of the conflicting interests collected under one roof. Education was monopolized by a comparatively few, and there was no breadth to such instruction as was given. Superstition took the place of religion, and the placating of the spirits of the deceased outweighed the nurture and development of those still on earth.

DER JUNGFERNSTIEG

The principal retail street of Hamburg, Germany, facing the Alster River

But a change is taking place in China such as has revolutionized Japan within the last half century. The sleeping giantess, whose drowsy eyes have so long shut out the rays of the morning sun, is showing unmistakable signs of an awakening. There was a vitality among her people which even two thousand years of political apathy could not exhaust—a sturdiness which centuries of poverty and superstition could not entirely destroy. Increasing contact with Europe and America is having its influence and the example of Japan is even more potent, for the people of Japan are not only neighbors, but are more like them in color and race characteristics. Let me note some of the evidences of this change.

The government, so long an absolute despotism, is about to become a constitutional monarchy. In 1898 the emperor, under the influence of some radical reformers, prepared a program almost revolutionary in its character. Recognizing that his aunt, the Dowager Empress, would oppose him, he prepared to put her under guard while the change was being made, but the old lady, learning of his plan, promptly took him in hand and made him a prisoner in his own palace. Since that time she has been the unquestioned ruler of the empire, the nominal emperor affixing his signature to the papers which she prepares. But so rapidly has the situation developed that she is now instituting the very reforms for the suggestion of which she so recently imprisoned her nephew. A commission of prominent officials is now abroad, some in Europe, some in America, studying the constitutions and governmental institutions of other countries. What a concession when we remember the self-sufficiency of China, the characterization of surrounding nations as "rude tribes" and the use of the term "barbarians" to designate even those with whom she made treaties.

It is reported that the Dowager Empress recently called her councilors together and asked how long it would take to establish a constitutional government. When told that it would probably require twelve or fifteen years, she replied that it must be done sooner than that, as she could not hope to live much longer and wanted it in operation before she died. Whether she appreciates the full importance of the change may be doubted, but the fact that the great nations, with the exception of Russia, have constitutions has doubtless made its impression upon her and Russia's defeat at the hands of the Japanese, coupled with present internal disturbances in the Czar's domain, contains its lesson.

As early as 1901 a commission was appointed to examine and report on all proposed measures affecting the organization and administration of the government, and in 1904 a general assembly of the ministers of the principal boards was provided for. While these newly created bodies have no legislative power, they indicate the trend toward a more popular government. The constitution, when adopted, as it ultimately will be, will inaugurate a parliamentary system. There is, therefore, a distinct advance along governmental lines, and this in itself means much for China and for the outside world.

A revision of the criminal code is also being perfected. The Hon. Wu Ting Fang, former Minister to the United States and now Vice-President of the Board of Foreign Affairs, has been made a member of the Board of Punishments. He and Shen Chia Pen, the Vice-President of the Board of Punishments, have by imperial decree been intrusted with the revision and codifying of the laws of China. They have established a bureau with a staff of secretaries and translators and have spent two years in the examination of the civil and criminal codes of the different countries in order to select laws which are applicable to the conditions existing in China. Ex-Minister Wu has taken a deep interest in this subject and kindly furnished me with the following list of reforms to which the imperial sanction has been secured:

1. Ling Chi, slow death by slicing to pieces, has been abolished. It was the punishment formerly prescribed for one found guilty of paracide, high treason, wilful murder of husband (the murder of husband by wife was according to Chinese law a much graver offense than the murder of wife by husband).

2. The heads of criminals were formerly exposed to the public after execution. This has also been abolished.

3. The beheading of a corpse of a criminal who died before execution, is no longer permitted.

4. According to the old law, parents, relatives and friends of one convicted of serious crimes were subject to punishment; now the punishment is confined to the guilty party. (While the practice of including innocent relatives in the sentence seems barbarous in the extreme, it was, after all, not so different in principle from the practice of the Western nations which in times of war inflict punishment indiscriminately upon innocent and guilty alike.)

5. The branding of criminals has been abandoned.

6. Corporal punishment of criminals is also abolished.

7. The torturing of accused persons during trial, except where the accused is charged with murder, and where the evidence of guilt is clear, has also been abolished. According to the Chinese law a person convicted of murder cannot be put to death until he confesses, and torture has been retained in a case of this kind as a means of compelling confession when the guilt has been otherwise established, but Mr. Wu expressed the hope that torture in such cases will be abolished in the near future.

The revision commission has also succeeded in obtaining an imperial decree ordering the construction of more modern prisons, requiring the inspection of prisoners and compelling humane treatment. Formerly relief from cruel treatment could only be secured by paying the official in charge.

The commission is now working upon a code of procedure and intends among other things the recommendation of a system of trial by jury, the admission of lawyers to practice in the courts and the relieving of prisoners and witnesses from the humiliating practice of kneeling in court.

In order to secure competent judges and lawyers for the carrying out of the new code, the commission have obtained the sanction of the government for the establishment of a law school at Pekin (the site has already been purchased), and the high schools and colleges of the various provinces have been instructed to add law to the curriculum of their studies.

Minister Wu called attention to other reforms that have been introduced into China within the last few years, among which may be mentioned the construction of railways, the establishment of a government board of commerce, the formation of a police force, municipal and provincial, the promulgation and incorporation laws and the establishment of mints.

At first the railroads were built by concessions issued to foreign companies, but because of the constant difficulties which grew out of such concessions, there is a growing sentiment in favor of government railroads. It was in the pursuance of this policy that the government acquired the rights of the American company which was projecting a road from Hankow to Canton. Some of the Americans residing in China have expressed regret that this road should have passed out of American hands, but I am satisfied that it is far better for the United States that China should own the road than that it should be in the hands of foreigners or even in the hands of Americans. It would be impossible to operate the road without more or less friction which would involve the countries in diplomatic controversies. If China operates the road herself, we will have equal rights with foreigners without the risks involved in private ownership. And, speaking of roads, the city of Pekin is passing through an era of street improvement. Some eleven miles of pavement has been laid within three years, and concrete sidewalks are making their appearance.

The finances of China have been in a miserable condition. Cash is the money in common use, and these brass coins, running about one thousand to the dollar, are too heavy for any excepting the smallest transactions. Think of doing business with money so heavy that you must carry a hundred pounds of money to make a ten dollar purchase. Some complained of silver in the United States because of its weight, but the silver certificates completely answered this argument, for a silver certificate is as convenient as a gold certificate and more convenient than gold coin; but in China they had no paper substitute. The monetary unit is called a tael and, if coined, would weigh about one and one-third times the Mexican dollar, but no coins of this denomination are in circulation. The Mexican dollar is in common use, and in some of the provinces there are fractional silver coins. But the Mexican dollar is so often counterfeited that it is customary to test each coin as it passes from hand to hand. I secured one of the "three piece dollars," as they are called. These are made by sawing a thin disc from each side of the dollar; the silver is then removed from the center and the cavity filled with lead and the skilfully that the counterfeit can only be deskillfully that the counterfeit can only be detected by the ring. Several of the banks issue paper notes payable in Mexican dollars, but they are discounted in the various cities so that a traveler's currency is always undergoing a shave. The government has decided to establish a uniform system of currency consisting of gold, silver and copper, the silver tael to remain the unit.

Patent laws and trade mark laws are now being prepared; in fact, China is being quickened in many ways by the increasing knowledge which she is acquiring of the ways of Western civilization. They are considering a change in the alphabet and characters in order that the language may be more easily learned.

I have already referred to the fact that China has until recently been practically without newspapers. There is no better evidence of the progress which China is making than is to be found in the increase in the number of her newspapers. While the circulation of these papers is small as compared with the circulation of similar papers in the United States and Japan, still the growth is constant and the colloquial dialect sometimes employed brings the news and editorial pages within the comprehension of those who cannot read books. Many of these newspapers are published in the interest of reforms. One of the papers started at Hong Kong opposed the examination system by which civil officials were selected, the foot-binding custom and the habit of wearing the queue. The editor cut off his own queue as an example and is now encouraged by the fact that the soldiers are gradually adopting a like course. He is also able to note progress in the matter of foot binding. An imperial edict has been issued exhorting the people to abandon the practice, and numerous societies are engaged in spreading literature upon this subject.

But more important still is the recent abolition of the examinations. This is a revolution that has shaken the ancient empire to its foundation, for the examination system not only affected the government, but moulded the educational system as well. In the larger cities elaborate provisions were made for these examinations, in some places from ten to fifteen thousand stalls being constructed. These stalls were about three feet wide by six deep and high enough to permit the student to stand erect. The only furniture was a board for a seat and another for a desk. At a given hour the students entered these stalls, were given their themes and kept in their stalls without communication until their tasks were finished. Now the stalls stand idle and the officials are chosen from the graduates of the newly established schools.

We visited the examination stalls at Pekin and found them in ruins. They had been occupied by the Boxers in 1900 and the rafters were torn out and used for fuel. After the roofs had fallen in, the unprotected walls rapidly crumbled.

The conservatives have been very much incensed by the abandonment of the examinations, but the reformers regard it as a long step in the right direction.

On every hand one sees signs of intellectual development. As stated in another article, the private school was for centuries the only source from which instruction in books could be gained. Now a complete system of schools is being established, consisting of primary, middle and high schools, with colleges in the larger cities. Viceroy Yuan Shiah Kai, who presides over the district in which Pekin is situated, and whom through the courtesy of Minister Rockhill I had an opportunity to meet, informed me that he had established three thousand schools within his jurisdiction within the past four years. The Viceroy is the successor of Li Hung Chang, and is considered the most influential man in the empire.

He is about forty-six years old and impresses one as a man of great mental vigor and alertness. He seems to take a deep interest in the reforms now being worked out and is cordial in his treatment of Americans.

Consul General Rodgers, of Shanghai, happened to be in Nanking during our visit there, and we paid our respects to Viceroy Chou Fu. This Viceroy is quite old and feeble, but he is grappling with the new problems and is a patron of education. He has established one thousand schools during the last few years, and estimated the number of Chinese students in Japan at this time at five thousand.

At Shanghai there is a government university, the buildings of which cost two hundred and ten thousand dollars. We learned that in some places Buddhist temples were being converted into schools; that girls' schools are already being provided for. This is even a greater evidence of progress than the opening of schools for boys, because of the inferior position which woman has occupied in the celestial empire.

Besides the government schools there are numerous missionary schools in which instruction is given to both boys and girls. We visited some of these schools at Pekin, Nanking and Shanghai, and found the instructors encouraged by the attendance and the interest taken. A number of Americans, and a still larger number of Japanese, are teaching in the government schools.

But enough has been said to indicate the regeneration through which the Flowery Kingdom is passing. What will be the effect of the change upon the world? Who is wise enough to peer into the future and outline the record of the next century? Japan furnishes the nearest parallel. Compare the Japan of fifty years ago with the Japan of to-day and some conception can be formed of China fifty years hence. As Japan's commerce increased, so is China's commerce increasing; as Japan sent statesmen abroad to investigate the methods of other governments, so China is now sending inquirers abroad; as Japan turned her attention to schools and colleges, so China is learning the advantage of universal education; as Japanese students journeyed into distant lands in search of knowledge, so Chinese students are in increasing numbers studying in foreign colleges. Even in the enlargement and training of her army she is patterning after Japan and employing Japanese drill masters.

It need not be thought strange that there is an anti-foreign sentiment in China. Was there not an anti-foreign sentiment in Japan forty years ago? The Shimonoseki affair was not unlike the Boxer trouble, except that it was less fatal to life, but it exerted a large influence in the overthrow of the shogun and in the restoration of the emperor. Just as in Japan the old finally gave way to the new and progress took the place of stagnation, so in China the old must give way to the new.

Advance is inevitable and the world need not fear the result. If China were strong enough to give effect to the hostility which some of her people now feel, she might be a menace to the peace of the world, but she cannot grow in strength faster than she grows in knowledge, and as she grows in knowledge she will learn, as other nations have learned, that nations help rather than injure each other by the material, intellectual and moral development of their people.

Automobiles for Business and Pleasure

There is a general belief that the "big end" of the automobile industry will eventually be the manufacture of heavy motor trucks and other business vehicles. The Government census of the carriage industry for the year 1900, however, does not quite bear out this belief. Neither is it supported by looking over the returns for the carriage industry in the previous census years, as far back as 1850.

In 1900 the value of family and pleasure carriages turned out reached the sum of $51,504,176, and their number was 907,482. The number of business, farm, Government and municipal wagons was only 575,351, to which may be added 2,316 public conveyances, both classes aggregating an estimated value of $32,627,787, or about three-fifths of the value of the family and pleasure carriages. Sleighs and sleds to the number of 118,222 are not included in these figures. They would add $2,324,600, mainly to the pleasure end of the production. But, on the other hand, there were also manufactured 23,914 wagons, carts and trucks by agricultural implement makers, and a goodly number of similar vehicles by blacksmiths and wheelwrights scattered throughout the country.

The figures above given are not of the highest accuracy, as many manufacturers refused to state their production or rendered unreliable reports, but on the whole the proportions in the figures may be assumed to be approximately correct.

Manifestly it would not be justifiable to infer from these figures that the number of business wagons demanded by this country and in use at any given time is less than two-thirds the number of family and pleasure vehicles (575,351 to 907,482). Assuming that the business wagons last twice as long as the light-built vehicles, their number may evidently be the larger one of the two classes, and yet the productive capacity of manufacturers would need to be larger for the smaller class, considering the more rapid deterioration.

No doubt a similar condition will be observed as soon as business motor vehicles shall have become as common as ordinary automobiles. Unless the motor-drawn business wagon is made to last twice as long as the fancy automobile ordinary lasts at the present stage of development, it will scarcely gain the foothold which all who speculate on the future of this branch of the automobile industry assume that it will gain.

The case seems to stand about as follows: The shorter the life of the business motor vehicle shall prove the slower will be its general introduction; and, on the other hand, the longer its life the smaller will be the number required to be manufactured each year to supply the regular demand. Whatever standpoint is taken in regard to the durability of the business motor vehicle in comparison with the durability of the speedier ordinary automobile, the statistics of the carriage industry would seem to support the belief that the manufacture of business motor vehicles can never be expected to rise to the magnitude of that branch of the automobile industry which flourishes at present.

Since, however, the production of business motor vehicles is greatly in arrears at present, aggregating perhaps only 1,500 wagons total output to date, against about 40,000 pleasure automobiles annually (1905-1906), a period of tremendous activity in the business vehicle field remains one of the attractive industrial possibilities of the next decade, but one which it seems the part of wisdom to frame mentally with the reservation that eventually the annual production of this class of vehicles must be expected to fall below the regular annual production of pleasure vehicles

The automobile has brought about a good many changes in the whole aspect of pleasure traffic. Persons who never thought of owning a horse and buggy buy a new automobile every year. The business motor vehicle may bring about similar surprises. The analogy from the carriage industry is therefore not absolutely cogent. It has, more especially, one weak point, which should perhaps be considered as favoring the possibilities for a larger eventual production of business motor vehicles than the above cited figures would indicate.

The weak point referred to lies in the fact that the statistics of the carriage industry take no cognizance of the horses required for motive power. If the numbers and values of the horses annually required for the two branches of work—pleasure and business—were included in the statistics it is possible that the business end would tip the scales to its side, since the life of the work horse averages much shorter than that of the animal used for light pleasure work with many intervals of rest. Another factor of even stronger import in the same direction is the presumable fact that the number of horses corresponding to each pleasure vehicle probably does not exceed an average of one, while it probably exceeds two for each working wagon.

Translating these conditions—loosely estimated as they are, for obvious reasons—into motor vehicle analogies, there seems to be reason for believing that the value, if not the number, of business motor vehicles will rise to a greater percentage of the value of pleasure automobiles than that indicated in the corresponding figures from the carriage industry—namely, the proportion between about $32,000,000 to about $51,000,000, as noted above. Whatever allowances are made at these points, however, the prediction that the production of business motor vehicles will eventually greatly exceed the production of pleasure automobiles in values and numbers—and such is the prediction now commonly made and accepted—seems to be founded on a somewhat loose guess rather than on the facts and indications of the past.—*Marius C. Krarup, in The Iron Age.*

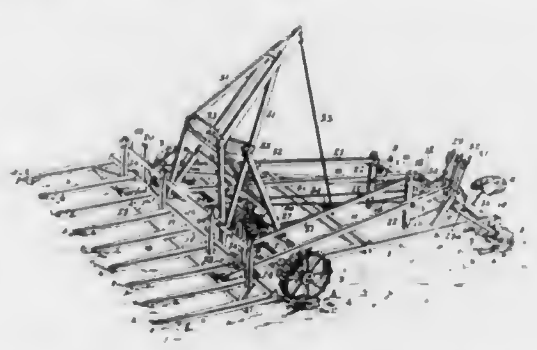
Some Recent Inventions

The following recent inventions have been specially reported for the EXPORT IMPLEMENT AGE by V. LeRoy Parker, Solicitor of Patents, 630 F street, N. W., Washington, D. C.:

Haytoader Machine

No. 806,161 **Grant Plummer** **Dec 5, 1905**

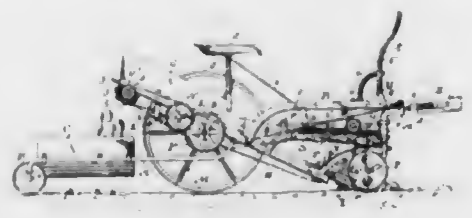
A hay loader machine, consisting of a loader-frame, a vertically swinging fork-carrying frame, a tiltable fork mounted on the fork-carrying frame, a fork-elevating lever connected with the fork-carrying frame, a swinging fulcrum for the lever, and operating mechanism for positively tilting the fork in either direction and for also positively holding the same against movement on its pivot in either direction when not actuated by such operating mechanism, said operating mechanism comprising an adjusting device mounted on the loader-frame, and connecting means mounted on and movable with the fork-carrying frame and connecting the fork with the



Beet Harvester

No. 808,281 **Ludwig Gettelman** **Dec. 26, 1905**

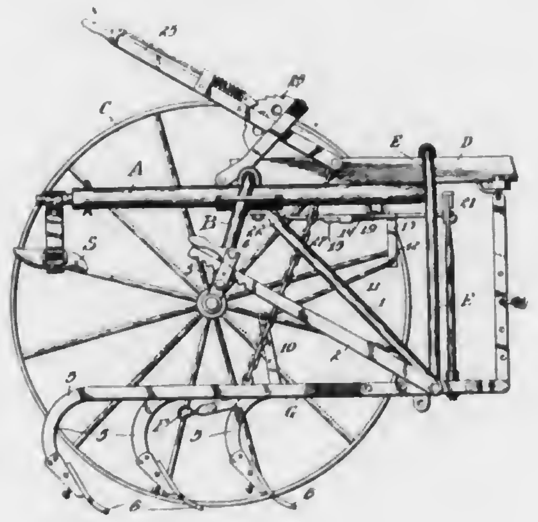
A beet harvester, consisting of a draft frame having cast-steel supports, another frame in lever-controlled adjustable connection with the one aforesaid, inclined beet-straddling fingers having partly curved shanks in connection with the adjustable frame and provided with rearwardly projecting prongs, an endless conveyer and supports for the same intermediate four side shields that are pivotally connected to the draft-frame and have rigid connection with said adjustable frame back of the fingers, said fingers, shanks and prongs forming a cradle forward of the conveyer; an axle on which traction-wheels and said shields are mounted a support in pivotal connection with the aforesaid adjustable frame, a reel mounted on the pivotal support over said fingers, and means by which motion is imparted to the conveyer and reel when the machine is in operation.



Cultivator

No. 807,906 **Dennis S. Blue and Otis Shepardson** **Dec. 19, 1906**

A cultivator having a frame, a U-shaped bracket vertically adjustable with respect to the frame, a lever pivoted to the bracket, an arch secured to the lever and a segment secured to the arch and lever for bracing the two with respect to each other, of cultivator-gangs, a yoke connecting their forward ends to which the lever is pivotally connected, foot-levers or treadles pivoted to the gangs, and having upwardly projecting arms, rods extending from these arms to the arch on opposite sides of its pivot, and a hand-lever extending rearward from said lever.

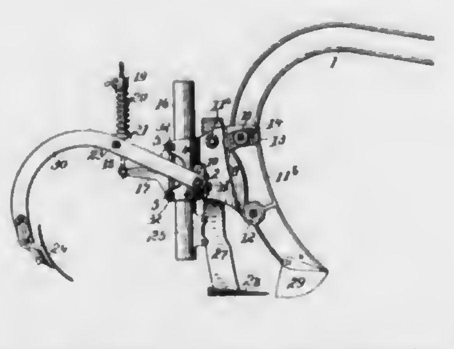


Lister-planter

No. 807,373. **William S Gaaham** **Dec. 12, 1905**

This invention has particular reference to lister-planters; and its general object is to provide means for attaching the various soil-cutting appliances used with such planters—as middle-breakers, sweeps, root-cutters, subsoilers, and shovels—and to also provide whatever adjustment the various appliances may need.

The invention consists of a lister-planter, having the downward-terminating beam thereof and a pair of plates attached to opposite sides of the beam, extended rearward out of contact with each other for a distance sufficient to form a space for a subsoiler-standard and shaped to receive a seed-tube between their rear ends, bolts for clamping the plates onto the seed tube, a bracket held in the rear of the seed-tube by the tube-clamping bolts and extended rearward, a pair of shovel-beams pivotally hitched to the plates in front of the seed-tube, a cross-bar conjoining the shovel-beams, a plate on the cross-bar, a threaded rod pivotally connected with the rear end of the bracket and extended through a hole in the plate on the cross-bar, a nut on the threaded end of the rod and a spring on the rod between the nut and the plate.

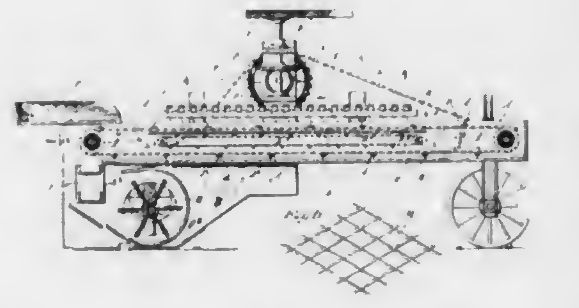


Peanut Harvester

No. 807,442 **Finton F. Ferguson and Jesse T. Benthall**
Dec. 26, 1905

In harvesting peanuts the vines with the nuts adhering in clusters, are plowed out of the ground, shaken free of the dirt, and then stacked up. This machine is designed to take these vines, with their nuts hanging to them, and to pick off the nuts and clean them ready for bagging, while the vines are discharged over the end of the machine in condition to be utilized for cattle-feed.

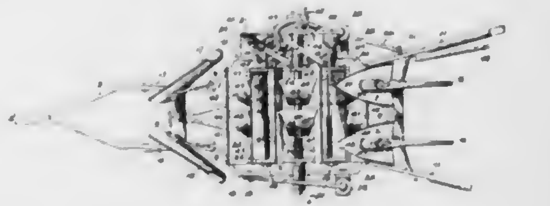
This machine comprises a set of picking devices having at one end a fan and shaking-shoe, a vertical driving-shaft with sweep-arm for turning it, wheels supporting the picking and cleaning devices in a position inclined to the horizontal, the tread of the wheels supporting the end of the picking devices opposite the fan being substantially the same distance from the picking devices as the bottom of the fan-case, whereby the bottom of said fan-case when resting upon the ground brings the picking devices horizontal and firm as against the operating strain.



Cotton Chopper

No. 811,106 **William Sutton** **Jan. 30, 1905**

A cotton-chopper having a drum supported for rotation and having radial earth-engaging blades, a spring-actuated member supported slidably by the drum, a plurality of chopping elements connected with said member to operate between two of the earth-engaging blades, and means for forcing said member against the action of its actuating spring.



FOR NON-SINKABLE SHIPS

Senator Hale, of Maine, has now brought in a bill to appropriate $10,000,000 for the construction of a modern warship, to be named the "Constitution," and to be built by the Columbia Safety Steamship Co., of Boston. The plan of this company is to make an immense battleship which is non-sinkable and non-capsizable.

EXPORT IMPLEMENT AGE

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It is well to remember that weight is not always an advantage in an implement. A machine that is light in weight but at the same time strong at the points where strength is needed, requires much less power to operate than a heavier machine.

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The American farmer is the most prosperous farmer in the world. Why is this? Labor in America is very high priced. Farm labor is high priced and scarce. The American farmer owes his prosperity to the American manufacturers of labor saving agricultural implements which permit him, not only to cultivate more land, but to secure larger yields and better prices on account of the superior quality of the farm product.

Competition in America is very sharp, and the result is that the goods which successful manufacturers are turning out are the very best goods that high grade material and skilled mechanics can turn out. Only our most progressive and successful manufacturers are in a position to handle export trade, and this is especially true in the implement and farm machinery line. An examination of the pages of THE EXPORT IMPLEMENT AGE will show our leading manufacturers who are prepared to handle export business.

INCUBATORS IN GERMANY

Consul Brittain, of Kehl, develops the importance of the German poultry interests, and the absence of incubators there, in the following letter:

"During the past eight years the interest in raising pure breeds of poultry in Germany has increased, and poultry shows are frequent. At an exhibit in Achen during February all kinds of poultry and game birds were shown, but not an incubator or brooder was shown, and even catalogues of such were absent. If American agents with exhibits of incubators, brooders, etc., were to visit these poultry shows they should be able to make many foreign sales. An international poultry show will be held the third week in April in Loerrach, Baden; in May there will be an exhibit in Baden-Baden, and plans are being made for a large exhibit in Karlsruhe, Baden, next September.

"German statistics issued a few months ago show that in 1902 the total value of fowl and egg imports into Germany was $38,556,000. There is a great field here for the introduction of American poultry-breeding supplies."

CHINESE STILL PREFER THE ANCIENT FARM IMPLEMENTS

Consul-General Rodgers, of Shanghai, responds to a request from New York for the names of firms in China who import or are interested in the sale of agricultural implements. He writes:

"In the agricultural sections of the entire Yangste valley there is practically no use whatever for foreign agricultural implements. The Chinese laborers in the rice and cotton fields, in the mulberry groves, and in the gardens find the Chinese implements of greater utility than any of the foreign, and adhere to them. The Chinese hoe, which contains a much greater weight of metal than the foreign one, being practically a mattock, is, according to their ideas, more serviceable in this heavy soil than the foreign implement. All the ordinary hand implements of agriculture are shaped and constructed according to Chinese taste. Agricultural machinery is not used in this section, even the plow being a great rarity. The Chinese turn over the ground usually with their mattocks. It is harrowed in a primitive way, and when the crop is gathered hand labor does all the work.

"Under these conditions it is not strange that the importing firms of Shanghai do not consider it worth while to carry a line of agricultural implements. It is difficult even to obtain a foreign implement for use in the garden of a foreigner in Shanghai. This is the present condition, and to all appearances it bids fair to continue for an indefinite period. In the north, and especially in Manchuria, some agricultural implements are being used; but these are rather the result of Russian introduction than of Chinese desire. The statement was made recently in one of the northern papers that the introduction of modern agricultural implements seemed practically as far off as ever."

FARM MACHINERY IN BULGARIA

Minister Jackson, writing from Athens, tells of a large increase in the use of agricultural implements in Bulgaria. He says that it is probable that among the fifty firms in Bulgaria which sell agricultural implements there are a number who may act as agents for American houses, but so far as he is aware there are no firms which handle American articles exclusively. He expresses the confident belief that if the matter is studied intelligently the field for American agricultural implements can be enlarged. The Bulgarian ministry of agriculture has in contemplation a series of measures to encourage the use of agricultural implements.

AMERICAN IMPLEMENTS IN GERMANY

Consul Harris, of Mannheim, says that thousands of American agricultural implements have been sold in southwest Germany, and yet two-thirds of the hay and grain is harvested by hand. The superiority of American sewing machines, cash registers, typewriters, shoes, office furniture and many other articles, has helped to make their introduction all but universal.

There is one lighthouse in the world that is not placed on any mariners' chart. It is in the Arizona desert, and marks the spot where a well supplies pure, fresh water to travelers.

THE UNITED STATES - GERMAN TARIFF

The adjustment of the tariff controversy between the United States and Germany is tangible evidence of the good-will existing between the United States and other Powers. In gratification over this commercial truce it should not be forgotten, however, that the adjustment is only temporary and marks but the beginning of the controversy. Germany grants to American goods the minimum rates of her tariff for a period of fifteen months, or until June 30, 1907. Reciprocally the United States continues to allow German argols, crude tartar, wine lees, manufactured or distilled brandies or other spirits, still wines, vermouth, paintings, pastels, and ink drawings to be entered at the reduced duties provided by Section Three of the Dingley Tariff Act. Further the United States has, at the request of German exporters, made certain changes in the administration of the customs system and recommended to Congress certain amendments to the Customs Administrative Act. A mutual desire to avert a tariff war prompted the concessions outlined, but it is believed that the basis of Germany's discrimination in favor of the United States was not the right under the most favored nation clause of the treaty between the two countries, but that it might lead to negotiations which would result in a long-term adjustment of the question.

Both the United States and Germany would suffer in a tariff war, the difference being only in the degree of injury, and it is incumbent on them to make the most of this short period of truce. The broad question brought out by the controversy and a question which will have to be solved, especially in the interest of America's growing export trade, is not one of protection or non-protection, but by what method the United States shall adjust itself most advantageously to the tariff systems of other countries. There is a growing feeling in the United States for tariff revision and its supporters differ only as to the best means to attain the end, the proposals ranging from a general reduction of duties to the adoption of maximum and minimum schedules and the entering into commercial treaties with foreign countries. The railroad rate and other local problems before Congress will prevent any full discussion of the subject at this session, but the present indications are that it will be one of the important questions before the next session of Congress.—*Commercial America.*

INDUSTRIAL USE OF HORSES

No beast in the animal kingdom has contributed so largely to the emancipation of man from drudgery as the horse. The inventive genius of man evolved the crude, primitive implements of agriculture with which the struggle of the survival of the fittest became the work of the early history of mankind.

Land cultivation by manual labor was of limited area and operations were so restricted that the surplus of products accumulated in primitive times, was insufficient to maintain population in cities. As soon as the soil was stirred and the seed placed in the ground there was started a conflict between the worthless weeds and the food plants so indispensable to the maintenance of life. The labor to cultivate a small area was enormous, and all men were compelled of necessity to become husbandmen.

Man is carniverous as well as herbiferous, and diversified his menu with the products of the flocks as well as the harvest of the fields. At most, with only primitive agricultural implements operated by hand, they could only be utilized on small holdings in narrow cultivation of the land. For ages the cereals were harvested with the sickle, and the gleaners followed the harvesters and gathered the grain that was left on the ground. The cradle succeeded the sickle, but great fields of wheat were impossible until the invention of the harvester, operated by horses, one machine doing the work of ten men.

In every department of practical land cultivation the horse is the pioneer of successful husbandry. Harnessed to a gang plow a pair of drafters will pulverize as much soil as twenty men. With harrow, seeder and harvester, one man becomes a multitude when compared with primitive agriculture. Harnessed to the mower, rake and self-loader, the hay harvest is garnered of proportions beyond the possibility of mere hand labor achievements. Eliminate the horse from agriculture and civilization would retrograde to primitive times.

Not only in agriculture, but in every industry requiring economic and efficient power, the horse is indispensable. The horse has made a vast metropolis possible by being a great producing factor in agriculture and moving the freight and merchandise of cities. In the mines, agriculture, industrial enterprises and transportation of merchandise there has not yet been evolved a substitute for the horse, and his importance is destined to be augmented rather than diminished with the progress of modern civilization.—*Drovers Journal.*

STRAIGHT AIMING UNDERGROUND

In driving the long Simplon Tunnel under the Alps, a fine test was offered for the accuracy with which engineering science can guide the direction of two parties of workers, starting 13 miles apart, so that they will meet in the heart of the mountain. Thire principal elements had to be calculated—the total length, the level, and the direction as to right or left. When the two bores met in the middle, it was found that the length, the least important of the elements, differed only about 31 inches from the calculated value: the difference in level was less than 4 inches; and the error in direction from one end was less than 5 inches, from the other less than 4 inches. The success of the engineers was remarkable, considering that the tunnel is 12 1-3 miles long.

ARMY AND NAVY

The total strength of the regular army, according to Secretary Taft's report, is 3,750 officers and 56,064 enlisted men. Of these, 739 officers and 11,164 men are in the Philippines. The death rate in the army was reduced last year from 8.64 to 6.75 per 1,000 by improved sanitary measures. Secretary Bonaparte in his report recommended the addition to the navy of two battleships, two scout cruisers, four destroyers, and five submarines and gunboats. He suggested that the present need of the navy is not enlargement, but the substitution of new and improved vessels for those that are worn out or antiquated. The battleship "Idaho," a sister ship to the "Mississippi," of 13,000 tons' displacement, was launched at Philadelphia, December 9th. The little daughter of Governor Gooding, of Idaho, named the vessel.

EXPORTS OF IMPLEMENTS

	FEBRUARY—		EIGHT MONTHS ENDING FEBRUARY—		
	1905.	1906.	1904	1905.	1906.
Mowers and reapers, and parts of	$1,371,723	$1,123,656	$5,738,055	$5,276,040	$5,330,575
Plows and cultivators, and parts of	291,030	333,817	2,454,648	1,587,049	2,662,991
All other, and parts of . . .	669,476	740,084	4,737,525	5,150,599	4,793,771
Total	$2,338,229	$2,197,557	$12,930,228	$12,013,688	$12,787,340
Exported to—					
United Kingdom	122,962	68,165	701,618	466,685	370,814
Belgium	32,070	36,413	43,611	56,343	118,669
France	440,111	285,301	1,190,155	1,180,650	565,758
Germany	126,646	388,763	662,880	393,187	1,181,141
Italy	14,071	38,610	47,578	41,266	85,009
Netherlands	15,231	126,753	26,024	29,336	321,156
Russia	932,909	576,863	2,220,592	2,425,274	1,394,990
Other Europe	71,480	72,311	396,303	265,768	724,609
British North America	87,017	126,586	1,802,851	1,291,525	1,168,296
Central American States and British Honduras	1,247	719	7,304	11,220	8,538
Mexico	18,484	43 236	219,000	214,323	308,064
Cuba	8,485	235	56,504	95,786	135,399
Other West Indies and Bermuda	367	517	8,279	7,927	8,053
Argentina	352,340	255,191	3,319,550	3,776,305	4,660,386
Brazil	9,820	3,154	32,898	112,534	62,279
Chile	37	5,536	216,792	215,233	274,041
Colombia	302	137	1,941	2,914	2,132
Venezuela	80	618	814	1,488	1,689
Other South America	12,009	24,546	180,796	99,921	223,758
British East Indies	3,807	15,145	42,857	41,093	39,120
British Australasia	12,110	12,051	1,078,180	844,695	611,920
Philippine Islands	1,396	15,731	25,093	12,588	102,924
Other Asia and Oceania	36,581	38,341	78,763	59,289	94,278
British Africa	7,462	34,616	513,695	275,235	273,212
All other Africa	30,772	17,716	56,151	93,073	50,795
Total	$2,338,229	$2,197,547	$12,930,228	$12,013,688	$12,787,340

The Metric System

The manufacturers of the "Old Country" are evidently awake to the mischief that is being threatened by those irresponsible busybodies on both sides of the Atlantic who would have the metric system compulsorily imposed on the English-speaking peoples. They have already successfully defended all attacks of the pro-meterists and are now assuming the offensive. The following is a copy of a circular sent by the Association of Users of British Weights and Measures to all members of both Houses of Parliament and to other public men:

"A handful of scientists, finding certain advantages in being able to understand each other's figures and the figures of their foreign contemporaries, have decided to base their calculations on a common unit. We do not find fault with them for that. Knowledge is international and common sense demands that the vehicles of knowledge should likewise be international. We join issue, however, with the scientist when he attempts to compel everybody else to use a unit which it has pleased him to adopt without thought or regard for anyone else. That unit—the meter—was objected to by Watt when it was introduced in 1793, and by Whitworth when it was re-introduced in 1840. The objection has since been upheld by every practical manufacturer who has determined to find out the truth for himself.

"But the scientist has made a fetish of his metric system, and a large number of people worship at the same shrine in the hope that they, too, may be looked upon as "something scientific." To declare one's self in favor of the metric system has become as much a fashion as going to Paris for a bonnet, and far more senseless, for the ladies do get good taste for their money.

"Much misunderstanding arises through confusing the metric system with decimalizing. Many people have thus been misled into declaring themselves in favor of the metric system. On this misconception the "Decimal Association" lives. Its professed object is 'the adoption of a decimal system of Weights, Measures and Coinage in the United Kingdom." Its *real object is the compulsory adoption of the metric system.*

"English-speaking countries the world over stand for freedom, progress, justice; government of the people, by the people, for the people.

"In all English-speaking countries the metric system is lawful. Anyone can use it who wishes. Nobody wishes. The proposal now is to make the people use it against their wishes.

"In no country has the metric system become law by the choice of the people. It has always been imposed upon them by bureaucratic governments; yet in not one case have the most rigid laws of compulsion been successful in introducing uniform weights and measures.

"In no metric country is there conformity in the weights and measures used in science, manufacture and trade Metric units can be used for measuring, but they are unsuitable for making; and manufacturers, even in metric countries, will not have them. The only uniformity in those countries is the uniformity of confusion.

"In all countries where the English language is spoken, where English laws are made, where English freedom reigns, where English customs prevail, there are to be found the manufacturer and the trader using those English weights and measures—and those only—which have made his manufactures pre-eminent and his commerce world-wide.

"The statement made by pro-meterists about loss of trade, increase of trouble, educational drawbacks, and the like, by our keeping to the English units, are so many "bogeys;" inquiry will prove them to be so.

"The educational muddle requiring elementary schoolmasters to teach children two systems of weights and measures, whereas only one is used for ordinary purposes, is the result of trying to force the metric system. A similar muddle, but of a far larger order of magnitude and costing hundreds of millions sterling, would be the result of forcing it upon the manufacture and trade of the country.

"No proof can be adduced to show that British trade would be one penny piece better off even if it were possible to force the change on the country.

"It is a mistake on the part of those who assert that the United States and the British colonies desire to have the metric system, and are only waiting for England to lead the way. As the manufacturers and traders of those countries are becoming acquainted with the real truth of what the change would mean to them, they are organizing their forces to oppose it.

"The textile trade of Britain, in which 25 per cent. of the population is interested, is solid against the metric system. Not one manufacturer in a thousand of the world's textile producers uses anything but the English system. It is internationally established for that great and important industry.

"The Association of Users of British Weights and Measures does not object to the use of decimals; they are an easy and convenient form of computation and are used daily with advantage. What they do object to most strongly is being *limited to their use,* as they would be under the metric system.

"Even if the metric system had a scientific base, which it has not; even if it were far superior to the English system, which it is not; even if it gave perfect manufacturing units, which it does not; even if it were possible to enforce it by compulsory legislation, which it is not; the enormous cost of introducing it; the vast amount of confusion and loss it would cause during the transition period, extending over several generations; the abandonment of our manufacturing standards, upon which are based the economical system of standardization and consequent interchangeability of parts; and the making worthless of nearly all our rich store of technical records and literature, make the price too great to pay for all the advantages claimed for the metric system."

The association responsible for this draws its membership from all English-speaking countries, and its Committee of Control includes representatives of leading firms in some scores of industries. The avowed policy of the association is opposition to the metric system. The Committee of Control is made up as follows: A. H. Adams, Sturtevant Engineering Co., Ltd., London; Howard A. Allport, colliery owner, Barnley; Lincoln Chandler, The Patent Shaft and Axletree Co., Ltd., Wednesbury; Archibald Danney, shipbuilder, Dumbarton; Robert Kaye Gray, India Rubber, Gutta Percha and Telegraph Works Co., Ltd., London; Henry Lovatt, builder and contractor, Wolverhampton; Walter M. Musgrave, John Musgrave & Sons, Ltd., Bolton; James Paxman, Davey Paxman & Co., Ltd., Colchester; Col. F. W. Tannet-Walker, Tannet-Walker & Co., Ltd., Leeds; secretary and offices, Geo. Moores, F.S.S., 25 Victoria street, London, S. W.

Switzerland is one of the world's most remarkable countries. Its population is 3,315,343; its foreign trade more than $400,000,000, $230,333,730 of which is imports and $170,055,504 exports. Switzerland's prosperity depends largely on the prosperity of the outside world. The guests that go into the country leave behind them from $30,000,000 to $40,000,000 a year. In spite of its mountains the land is carefully cultivated, and is made to yield a large return in cereals, vegetables, fruits and wines.

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The Metric System

The manufacturers of the "Old Country" are evidently awake to the mischief that is being threatened by those irresponsible busybodies on both sides of the Atlantic who would have the metric system compulsorily imposed on the English speaking peoples. They have already successfully defended all attacks of the pro-meterists and are now assuming the offensive. The following is a copy of a circular sent by the Association of Users of British Weights and Measures to all members of both Houses of Parliament and to other public men:

"A handful of scientists, finding certain advantages in being able to understand each other's figures and the figures of their foreign contemporaries, have decided to base their calculations on a common unit. We do not find fault with them for that. Knowledge is international and common sense demands that the vehicles of knowledge should likewise be international. We join issue, however, with the scientist when he attempts to compel everybody else to use a unit which it has pleased him to adopt without thought or regard for anyone else. That unit—the meter—was objected to by Watt when it was introduced in 1795, and by Whitworth when it was re-introduced in 1840. The objection has since been upheld by every practical manufacturer who has determined to find out the truth for himself.

"But the scientist has made a fetish of his metric system, and a large number of people worship at the same shrine in the hope that they, too, may be looked upon as "something scientific." To declare one's self in favor of the metric system has become as much a fashion as going to Paris for a bonnet, and far more senseless, for the ladies do get good taste for their money.

"Much misunderstanding arises through confusing the metric system with decimalizing. Many people have thus been misled into declaring themselves in favor of the metric system. On this misconception the "Decimal Association" lives. Its professed object is 'the adoption of a decimal system of Weights, Measures and Coinage in the United Kingdom.' Its *real object is the compulsory adoption of the metric system.*

"English speaking countries the world over stand for freedom, progress, justice; government of the people, by the people, for the people.

"In all English speaking countries the metric system is lawful. Anyone can use it who wishes. Nobody wishes. The proposal now is to make the people use it against their wishes.

"In no country has the metric system become law by the choice of the people. It has always been imposed upon them by bureaucratic goverments; yet in not one case have the most rigid laws of compulsion been successful in introducing uniform weights and measures.

"In no metric country is there conformity in the weights and measures used in science, manufacture and trade. Metric units can be used for measuring, but they are unsuitable for making; and manufacturers, even in metric countries, will not have them. The only uniformity in those countries is the uniformity of confusion.

"In all countries where the English language is spoken, where English laws are made, where English freedom reigns, where English customs prevail, there are to be found the manufacturer and the trader using those English weights and measures—and those only—which have made his manufactures pre-eminent and his commerce world wide.

"The statement made by pro-meterists about loss of trade, increase of trouble, educational drawbacks, and the like, by our keeping to the English units, are so many "bogeys;" inquiry will prove them to be so.

"The educational muddle requiring elementary schoolmasters to teach children two systems of weights and measures, whereas only one is used for ordinary purposes, is the result of trying to force the metric system. A similar muddle, but of a far larger order of magnitude and costing hundreds of millions sterling, would be the result of forcing it upon the manufacture and trade of the country.

"No proof can be adduced to show that British trade would be one penny piece better off even if it were possible to force the change on the country.

"It is a mistake on the part of those who assert that the United States and the British colonies desire to have the metric system, and are only waiting for England to lead the way. As the manufacturers and traders of those countries are becoming acquainted with the real truth of what the change would mean to them, they are organizing their forces to oppose it.

"The textile trade of Britain, in which 25 per cent. of the population is interested, is solid against the metric system. Not one manufacturer in a thousand of the world's textile producers uses anything but the English system. It is internationally established for that great and important industry.

"The Association of Users of British Weights and Measures does not object to the use of decimals; they are an easy and convenient form of computation and are used daily with advantage. What they do object to most strongly is being *limited to their use,* as they would be under the metric system.

"Even if the metric system had a scientific base, which it has not; even if it were far superior to the English system, which it is not; even if it gave perfect manufacturing units, which it does not; even if it were possible to enforce it by compulsory legislation, which it is not; the enormous cost of introducing it; the vast amount of confusion and loss it would cause during the transition period, extending over several generations; the abandonment of our manufacturing standards, upon which are based the economical system of standardization and consequent interchangeability of parts; and the making worthless of nearly all our rich store of technical records and literature, make the price too great to pay for all the advantages claimed for the metric system."

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donna une place immédiatement. Peu de temps après il recevait quarante mille dollars pour une presse perfectionée. Depuis lors il a pris de nombreux brevets, dont plusieurs représentaient de grands progrès dans les sciences.

Une agréable célébration

M. William H. Caldwell, de la Chadborn and Caldwell Manufacturing Company, de Newburgh (New York) recevait dernièrement un beau témoignage d'affection de la part des fonctionnaires et des employés de la compagnie : ils lui ont offert une splendide breloque maçonnique pour lui montrer d'abord combien ils appréciaient ses taients d'administrateur auxquels la compagnie doit pour une grande part le développement rapide de son commerce, developpement tel que la compagnie occupe, à l'heure actuelle, une des toues premières places dans la manufacture des tondeuses de gazon, tant en Amérique qu'à l'étranger, mais ce gracieux présent attestait de plus l'affection que l'aimable personnalité de M. Caldwell a su lui gagner de la part de ses associés et de ses employés. L'évènement fut donc une marque de bonne volonté où tous prirent part. Le journal de l'endroit, le *Newburgh News* en a donné le compte-rendu suivant :

La présentation a eu lieu dans les usines à tondeuses de gazon, rues Lander et South Williams. A 9 heures, les machines s'arrêtèrent et les employés s'assemblèrent au second étage du vaste établissement. On fit alors mander M. Caldwell dans ses bureaux, et le présent fut offert par M. Albert W. Mapes, qui prononça ces paroles :

"En voyant le nombre de personnes assemblées ici, mon esprit se reporte tout naturellement quatorze années en arrière, aux débuts de cette organisation. Les hommes qui étaient présents au lancement de l'entreprise ne sont plus ici aujourd'hui, à l'exception de vous et de moi. Des pionniers qui n'épargnèrent point leurs efforts pour assurer le succès de la nouvelle compagnie, il ne reste plus que nous deux. Il est évident que nous ne pouvons pas parler de ces temps déjà lointains sans évoquer le souvenir du président, votre honoré père. Avant même que notre fabrique fût achevée, les jours dangereux de 1892 et de 1893 nous surprenaient, et nous voyions nos efforts et notre capital disparaitre dans un gouffre apparemment sans fond, et il semblait qu'il ne nous resterait bientot plus rien : mais la volonte indomptable de votre père servait à nous fortifier, à nous encourager à verser jusqu'à ce que trouvions un fond sur lequel nous appuyer. Chacun sait aujourd'hui combien son optimisme était clairvoyant, et le petit atelier qui n'occupait que quelques hommes est devenu la grande fabrique où nous travaillons aujourd'hui entourés par cette splendide force d'hommes dont le travail et la loyauté nous permettent de produire jusqu'à cinq cents tondeuses par jour.

"Nous avons la plus vaste fabrique de tondeuses de gazon et la mieux outillée du monde entier, et, je puis bien le dire, la fabrique possédant les meilleurs ouvriers. Nous étant mis à l'œuvre avec rien, alors que l'Angleterre fabriquait des tondeuses de gazon depuis plus de soixante années, nous produisons aujourd'hui chaque année, plus de deux fois le nombre de tondeuses produits par tous les fabricants anglais réunis. Je ne parle point de ceci par esprit de vantardise, mon but est de montrer que, en dépit d'obstacles assez sérieux pour décourager la plupart des hommes, nous avons pu dérober le succès à l'étreinte même de la défaite, grâce surtout au vaillant concours de tous nos employés.

"Ceux qui sont chargés de la direction des affaires ont toujours été heureux de reconnaitre cela et de donner à chaque homme l'éloge que mérite son concours fidèle et loyal. Et, de leur côté, les hommes ne se sont point fait faute de montrer combien ils se rendaient compte de la responsabilité des directeurs et combien ils appréciaient leur travail.

"Quand, il y a environ deux ans, aucun de nous ne put plus douter que celui qui avait été notre chef allait être appelé à déposer ses instruments de travail, nos pensées se tournèrent tout naturellement vers son successeur. Et nos pensées furent unanimes à désigner celui qui devrait recueillir sa tâche, car, dès le début, vous vous étiez identifiés avec les détails du travail, vous aviez montré de grandes aptitudes pour le mener à bien, vous discerniez nettement ce qu'il exigeait et ce qu'il pouvait donner. Vous vous rappellerez que vous fûtes alors autorisé par les directeurs de faire usage de votre propre jugement dans les affaires et qu'ils vous promirent leur concours absolu.

"De leur côté, les hommes, dans les ateliers, n'ont point tardé à voir et à apprécier vos talents d'organisateur et de directeur, ils ont appris à vous estimer pour l'intérêt que vous portez à leur bonheur et à leur bien-être, autant que pour votre zèle pour le bien de la compagnie. Leurs sentiments se sont manifestés dans plusieurs occasions et de diverses manières. Ils mont aujourd'hui choisi pour leur porte-parole et bien que j'aie accepté, je ne puis pas songer à la fille ainée dans *Bird's Christmas Carols* de Kate Douglas Wiggins. Quand on lui confie toute une nichée d'enfants et qu'on lui dit de veiller à ce qu'ils se conduisent bien à un diner de Noël, elle s'écrie qu'elle ne veut point aller à ce diner, qu'elle aurait bien assez affaire à s'occuper de sa propre conduite sans se charger de la conduite de toute la famille. Je pourrais peut-être trouver des mots pour exprimer l'estime que j'ai pour vous, mais vouloir exprimer l'estime de tous ces hommes. . . Non, j'y renonce tout simplement. Tout ce que je puis dire c'est qu'ils ont manifesté un vif intérêt pour tout ce qui vous touche de près. Par exemple, quand vous fûtes élu naguère président de l'Association des hommes d'affaires et que les journaux publièrent de si belles prophéties sur l'avenir de l'Association soas votre compétente direction, chaque homme se sentait comme plus grand, plus fier, c'était pour chacun d'eux comme un compliment personnel. Puis encore, lorsque, il y a quelques jours, fondit sur vous ce nuage affreux qui menaça d'emporter votre fils unique, chaque homme dans les ateliers avait comme le pressentiment d'eun deuil personnel qui allait l'atteindre, et l'on formait des vœux ardents, on faisait de ferventes prières pour la guérison de votre enfant. Maintenant que la bonne main de la Providence semble avoir éloigné la maladie et que vous avez de nouveau votre fils sous votre toit, ces hommes se réjoussent avec vous devant la perspective de jours meilleurs.

"Ils veulent aujourd'hui vous donner une preuve palpable de l'affection et de l'estime qu'ils ont pour vous en vous priant d'accepter un petit présent. Tous ont donné quelque chose et les sommes réunies ont produit cette précieuse breloque. Ils esperènt que vous la recevrez et la porterez avec autant de plaisir qu'ils en ont à vous la donner. Qu'elle vous rappelle non seulement les sublimes leçons que vous avez récemment apprises dans les ordres auxquels vous avez été initiés, mais qu'elle vous rappelle encore qu'ici même, dans notre propre fabrique, il y a de nombreux cœurs loyaux qui forment les vœux les plus sincères pour votre avenir et qui espèrent que leurs vœux ne seront point deçus."

M. Caldwell, en acceptant la breloque, dit que les ouvriers avaient été avec lui assez longtemps pour savoir qu'il ne s'entendait point à faire des discours. Il remercia sincèrement les employés et assura ses auditeurs qu'il n'aurait pu recevoir de présent d'aucun autre corps d'hommes avec moitié autant de plaisir.

La breloque est en or, avec faces d'onyx, elle est sertie de neuf diamants et de huit rubis. L'une des faces représente les emblèmes des Knights Templar, et l'autre, les emblèmes de 32 ème degré, rite écossais : l'aigle s'ouvrant sur une charnicère et révelant les insignes.

Déplacement des voies commerciales

Le déplacement des grandes voies commerciales a édifié un plus grand nombre de villes que toute autre cause, et il en a plus détruit que les guerres ou les tremblements de terre.

La raison de l'existence d'un grand centre de commerce et d'industrie, c'est que dans cet endroit se rencontrent les conditions les plus avantageuses pour le commerce et l'industrie, et dans ces grands centres se sont amassés un grand nombre d'individus parce que là ils étaient mieux à même de s'assurer un emploi et d'en obtenir la rémunération nécessaire à leur subsistance.

Aux époques les plus reculées, alors que peu de personnes se hasardaient dans des bateaux sur les mers, les voyages se bornaient à suivre les côtes, on perdait rarement de vue la terre ferme. Il en résultait que le commerce se faisait à travers les continents par des caravanes, tel le commerce entre l'Asie and l'Europe.

Les grandes voies commerciales passaient par Babylone, Damas, d'autres villes de l'Asie occidentale et se prolongeaient jusqu'aux rives de la Méditerranée. D'autres voies les croisaient à Constantinople,.à Tyr, à Antioche, dans d'autres villes de la côte, qui toutes devinrent de grandes places de commerce ; et encore qu'elles fussent fréquemment visitées par des tremblements de terre, elles ne perdirent jamais leur importance tant que les routes commerciales ne furent pas déplacées. Aucune cité de l'antiquité ne fut plus fréquemment désolée par les guerres que Babylone, et cependant elle continua à occuper fièrement la première place parmi les cités de l'Orient tant que les innombrables caravanes des marchands de l'Asie continuèrent à l fréquenter et en firent une de leurs plus grandes places de commerce.

Babylone commença à decliner à partit du moment où des navires de l'Inde et de la Chine se hasardèrent à franchir la Mer Rouge. Dès lors les voies commerciales se déplacèrent : des villes de l'Asie Mineure elles passèrent à celles de l'Egypte, et Alexandrie devint le plus grand centre de commerce sur les eaux de la Méditerranée. Ses navires trafiquaient avec les ports européens, de Constantinople à Gibraltar, sa grandeur continuait de croitre, quand, mille années après le commencement de l'ère chrétienne, Venise acquit soudain une très grande importance commerciale et maintaint sa suprématie comme place de commerce jusqu'à la découverte de l'Amerique, en 1492, et jusqu'au voyage—qui eut lieu presque à la même époque—que le Portugais Vasco de Gama fit aux Indes en doublant le cap extrême de l'Afrique du Sud.

Ajrès cela Venise déclina rapidement, Alexandrie devint un port de peu d'importance car on trouva que les grandes villes de commerce européennes situées sur les côtes de l'Atlantique étaient plus proches du riche hémisphère des Amériques et plus commodes pour les navires qui voyageaient entre les Indes et l'Europe.

Ainsi donc on peut voir que le déplacement des voies commerciales a contribué à détruire des villes beaucoup plus que la guerre et les tremblements de terre, mais que s'il a détruit dans un endroit il a édifié dans un autre.

La maison de Dapson & Wolf, Oneida, N. Y. (États-Unis d'Amérique), a pour spécialité la construction de voitures élégantes. La voiture qu'elle exporte le plus est une voiture à deux roues, fort douce, et qui reçoit partout le meilleur accueil. Elle porte dans chaque détail, l'empreinte de la meilleure main d'oeuvre américaine, et les matériaux dont elle est faite sont de toute première qualité. La maison la garantit absolument. Nous recommandons à ceux de nos lecteurs qui sont à même de tenir des produits de cette catégorie, de demander à MM. Dapson & Wolf des détails plus circonstanciés et leur prix-courant. Ils trouveront que la compagnie connait à fond les exigences du commerce extérieur et que ses procédés commerciaux sont à la fois agréables et expéditifs. S'adresser à MM. Dapson & Wolf, Oneida, N. Y. (États-Unis d'Amériquceè.

Niagara et Victoria

Depuis que l'attention du monde entier a été attirée sur les grandes chutes Victoria, dans l'Afrique du Sud, on a fait de fréquentes comparaisons entre celles-ci et les chutes du Niagara. Sans sa conférence sur "La distribution de la force," à Johannesburg, en août dernier, le professeur W. E. Ayrton a posé cette question : Quelle est la comparaison entre la force de la chute Victoria et de la chute du Niagara? Sa réponse a été la suivante : Au Niagara, le débit est de 62,000,000 à 104,000,000 de gallons par minute ; à Victoria il est d'environ 5,000,000 en août. La hauteur de chute au Niagara est de 160 pieds, et de 380 pieds à Victoria. Aussi, pendant que le débit minimum du Niagara représente environ 3,000,000 de chevaux-vapeur, celui des chutes de Victoria, en août, n'est que de 580,000 chevaux-vapeur, et si l'on accepte les rapports des autorités locales établissant que le débit des chutes de Victoria n'est que de 2,500,000 gallons par minute en novembre, la force minimum des chutes de Victoria ne peut être qu'environ le dixième du minimum des chutes du Niagara. Il n'est pas fait mention du maximum pour les chutes Victoria.

Voyage au póle en ballon

M. Walter Wellman, le correspondant du *Record-Herald*, de Chicago, qui dirigea, il y a plusieurs années une expédition polaire par bateau et traineau qui n'eut qu'un succès fort médiocre, vient d'être chargé de construire un ballon, de s'en servir pour aller chercher le pôle et de signaler ses découvertes par le télégraphie sans fil. M. Santos Dumont, le fameux aéronaute, de Paris, doit remplir les fonctions d'ingénieur consultant dans la construction et l'équipement du ballon ; il a de plus offert d'accompagner l'expedition comme directeur et guide. M. Wellman dit que son ballon qui se construit à Paris sera achevé le premier mai, et que le départ se fera en juillet, du Spitzberg. Ce navire volant doit transporter 5,500 livres de combustible ; la nacelle, en forme de bateau, pourra convenablement loger cinq hommes et contenir assez d'aliments pour soixante-quinze jours et, en plus, des traineaux à moteur pour permettre aux explorateurs d'avancer sur la glace en cas de besoin, plus enfin les appareils de télégraphie sans fil. Un guide-rope d'acier étiré en cône, trainera sur la glace, maintenant le ballon à une hauteur assez constante et assurant sa stabilité verticale.

Produits du sol

Le travail du fermier américain pour 1905 a été le plus important travail industriel accompli dans le monde entier. Les récoltes des deux dernière annees avaient une valeur supérieure à tout l'or du monde entier recueilli depuis quatre cents ans.

Le fermier américain d'aujourd'hui est en passe de fournir la presque totalité des aliments que consomment les habitants de notre globe. Nos fermes americaines ont produit 2,708 millions de boisseaux de maïs, 900 millions de boisseaux d'avoine, 684 millions de boisseaux de froment, 35 millions de boisseaux de seigle et 183 millions de boisseaux d'orge. La récolte des grains des fermes américaines remplirait 5,025,000 wagons de marchandises ordinaires et a eté evaluée à 2,126 millions de dollars.

Le fermier americain a récolté en outre 200 millions de boisseaux de pommes de terre (valeur : 138 millions de dollars), 600 millions de livres de tabac (valeur : 52 millions de dollars) et 60 millions de tonnes de foin (valeur : 605 millions de dollars).

Il y a 18,274,551 chevaux et mulets dans les fermes américaines (presque autant que dans l'Europe entiere, si l'on en exclut la Russie qui possède 20,020,000 chevaux et mulets). Nos chevaux et mulets de ferme sont évalués à un milliard et demi de dollars.

En additionnant les recoltes de maïs, d'avoine, de ble, d'orge, de riz, de seigle et de sarrasin, on trouve que les Etats-Unis ont produit un total de 4,521 millions de boisseaux, soit 225 milliards de livres.

Le fermier americain a également recolté en 1905 des legumes divers, du sucre, des fruits, des noix, des haricots, des pois, et autres produits formant un total de 40 milliards de livres, et valant plus de 420 millions de dollars. Pris ensemble, les produits alimentaires des fermes américaines pour 1905 pesaient plus de 450 milliards de livres, et leur valeur s'élevait a plus de 3 milliards et demi de dollars. Chargés dans des wagons de marchandises, ils formeraient un train qui ferait près de quatre fois le tour du globe. Les produits du fermier américain pourraient nourrir le septieme du genre humain ; ils donneraient à chaque homme, à chaque femme, à chaque enfant, cent cinquante livres de grain, soit le cinquième de la quantité de grain que chacun d'eux consomme, annuellement.

La valeur totale de la production des fermes americaines pour 1905, s'élevait à 6 milliards 415 millions de dollars. Il faut inclure dans ce chiffre la valeur des céréales, des légumes, du coton, des pommes de terre, du sucre de betterave, du tabac, des oignons, des airelles, etc.

Récompense pour les inventeurs

Le roi d'Italie offrait dernièrement des récompenses substantielles pour l'invention de diverses choses. Il y aura une exposition à Milan, cet été, et le roi d'Italie versera 450,000 francs aux exposants d'inventions. Le concours est ouvert au monde entier, et les prix sont, en partie, les suivants :

1. Un prix de 50,000 francs pour un mécanisme simple et pratique ayant pour but de mettre les électriciens à l'abri du danger que présente l'exercise de leurs devoirs.

2. Cinquante mille francs pour un mécanisme d'accouplement automatique des wagons de chemin de fer.

3. Cinquante mille francs pour la meilleure organisation pour la distribution de bon lait aux quartiers populeux.

4. Cent mille francs pour les meilleurs projets de maisons pour les personnes peu fortunées.

5. Cinquante mille francs pour un bateau à moteur perfectionné.

6. Cent mille francs pour les perfectionnements apportés à la construction ou au mode d'emploi d'une machine déjà en usage et reconnue comme machine d'une haute importance,

L'offre du roi couvre non seulement le champ mecanique des inventions, elle prend encore la philanthropie en considération. Les personnes capables d'inventer une machine ont toujours reçu des récompenses rémunératrices, mais ce n'est pas toujours qu'une personne qui suggère une forme nouvelle de philanthropie se trouve recompensée—si ce n'est en esprit.

Marshall Field

Marshall Field, le multi-millionaire prince du commerce de Chicago, vient de mourir à la Holland House à New York. Une pneumonie l'emportait en une semaine. Les obsèques ont eu lieu à Chicago, et les 1,100 membres de l'Association commerciale de Chicago ont suspendu leurs opérations commerciales entre midi et une heure comme marque de respect pour le mort illustre. Les grands magasins et la chambre du commerce ont fait la même chose. M. Field passait pour le plus riche négociant due monde, sa fortune étant évaluée à 150 millions de dollars. L'histoire de sa vie est celle d'un garçon de ferme de la Nouvelle Angleterre qui se rendit dans l'ouest et grandit avec le pays, c'est-à-dire avec Chicago. Il était né en 1835.

Moulins à vent à bord des navires

On a fait à bord du navire *Arctic* un nouvel usage des moulins à vent. Pour économiser du combustible, lequel doit toujours être transporté, on construit des moulins à vent dès que le navire fut immobilisé dans les glaces. La force ainsi obtenu était employée à comprimer de l'air qui servait à son tour à actionner une dynamo et à charger les accumulateurs qui donnaient la lumière électrique au navire. L'essai fut suffisamment heureux pour que l'American Shipbuilder crut bon de recommander l'adoption de moulins à vent à bord des bateaux-phares qui servent de phares flottants le long de nos côtes.

Ces vaisseaux sont stationnés à des endroits presque toujours exposés à des courants d'air provenant d'une direction ou d'une autre, et l'on croit que les moulins à vent leur donneraient assez d'énergie pour leurs lampes de signal, pour la cuisine, et peut-être pour le chauffage du navire en hiver. On suggère que des expériences soient scientifiquement conduites, non seulement sur les bateaux-phares, mais sur les phares eux-mêmes, qui sont généralement dans des situations exposees aux vents.

Charrues pour l'exportation

Nous désirons appeler l'attention de nos lecteurs sur l'annonce de la South Bend Chilled Plow Company, que parait au recto de la couverture de ce journal. On voit dans l'annonce une charrue à soc réversible qui possède des avantages marqués. On a fait le meilleur accueil à cette charrue sur tous les marchés extérieurs où elle été introduite : les constructeurs la recommandent hautement pour les sols argileux, graveleux, pierreux, les sols durs en général. La South Bend Chilled Plow Company fait un commerce extérieur énorme ; elle est prête à répondre sans délai à toutes les demandes de renseignements, toutes les commandes sont exécutées avec promptitude et avec un soin minitieux. Toute correspondance sera bienvenue.

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En el Directorio para Compradores, en la primera parte, hallarán nuestros lectores los informes en el idioma español, a fin de que puedan entablas una correspondencia mas satisfactoria con nuestros anunciantes.

Buques de Velas Veloces

Puede ser que se sorprendan muchas personas que creen que los buques de velas son anticuados y lentos en comparación con los de vapor, al saber que algunos de los viajes hechos por los famosos "clipers" americanos fueron más rápidos que los de la mayor parte de los vapores del dia. A la verdad, hoy mismo hay buques de velas que con una brisa regular favorable pueden navegar con más velocidad que nueve de cada diez de los vapores vagamundos que navegan en el oceano.

Marshall Field

Marshall Field, el multi-millionario y príncipe comerciante de Chicago, murió en el Hotel "Holland," de Nueva York, de una pulmonía que le tuvo en cama una semana. El funeral tuvo lugar en Chicago, donde los 1,100 miembros de la Asociación Comercial suspendieron todos sus negocios entre las doce y la una del dia como un tributo de respeto á su memoria. Igual demostración hicieron los grandes bazares (department stores) y la Junta de Comercio. Mr. Marshall Field era conocido como el comerciante más rico del mundo, calculándose su caudal en unos $150,000,000. La historia de su vida es la de un mozo de campo ó estanciero de la Nueva Inglaterra que se fué al Oeste, y creció con el pais ; es decir, que creció con Chicago.

Productos de Nuestra Tierra

Los trabajos del hacendado y labrador americanos en 1905 han dado el más importante resultado de todos los trabajos industrials del mundo entero. El valor de las cosechas de los últimos dos años ascendió á una suma mayor que el del oro producido en todo el mundo durante los últimos cuatrocientos años.

El hacendado americano está hoy en camino de suministrar una gran proporción de los comestibles con que se alimenta el mundo. Nuestros hacendados produjeron 25.708.000,000 de fanegas de maiz, en números redondos, 900.000,000 de fanegas de avena, 684.000,000 de fanegas de trigo, 35.000,000 de fanegas de centeno, y 183.000,000 de fanegas de cebada. Esa cosecha de granos de los hacendados americanos llenaria 5.025,000 grandes carros de carga de ferro-carril, y se evalúa en $2,126,000,000, al precio por mayor.

De otros frutos de la tierra los hacendados americanos produjeron 200.000,000 de fanegas de patatas, (evaluados en $138.000,000), 600.000,000 de libras de tabaco (por valor de 52.000,000) y 60.000,000 de toneladas de heno (evaluados en $605.000.000). Hay en esas haciendas 18.274.551 caballos y mulos (casi tandos como en toda Europa, excluyendo á Rusia, que tiene 20.020,000 caballos y mulos. Nuestros caballos y mulos de campo valen unos $1,500.000,000.

Incluyendo el maiz, la avena, el trigo, la cebada, el arroz, el centeno y el trigo sarraceno, los Estados Unidos producen un gran total de 4.521.000,000 de fanegas, ó un peso de 225,000,000,000 de libras.

Los hacendados americanos también cultivaron y cosecharon en 1905 una gran variedad de otros frutos, tales como verduras, caña de azúcar, frutas, nueces, frejoles, guisantes, etc., etc., que pesaron 40,000,000,000 de libras y de un valor de más de $420.000,000. Sumando todos los productos alimenticios de las haciendas americanas, se calcula su peso en más de 450,000,000,000 de libras, y su valor en primeras manos en más de $3,500,000,000. Para cargar en carros de carga de ferro-carril toda esa producción se necesitaria un tren tan largo que con él se podría rodear cerca de cuatro veces nuestro globo por el ecuador. Los productos de las haciendas americanas podrian alimentar á una séptima parte de la población del mundo entero, ó de la raza humana, y darle á cada hombre, mujer y niño ciento cincuenta libras de granos, ó una quinta parte de su abasto anual de granos comestibles.

El valor total de la producción de los hacendados americanos importó unos $6,415,000,000, incluyendo los cereales, legumbres, algodon, patatas azúcar de remolacha, tabaco, cebollas, frutas, etc., etc.

El Progreso de America

Ningún asunto de importancia nacional ha llamado tanto la atención durante los últimos pocos años como la concentración de poder nacional en los Estados Unidos. Este crecimiento hace parecer insignificante en comparación el de todas las demas naciones. Y si los datos estadisticos no procediesen de autoridad irrefutable, serian increibles. Charles A. Conant, el tesorero de la Morgan Trust Co., contribuye al *International Quarterly* un articulo que pinta vívidamente los rápidos pasos con que se desarrolla este país.

Para muchas personas que no han seguido el rápido desarrollo de los Estados Unidos son atolondradores esos guarismos estadisticos. Son solamente típicos del crecimiento del país. Si los depósitos de los bancos nacionales de Nueva York han subido de $310.000,000 en 1890 á 970.000,000 en 1905, y los depósitos de los bancos nacionales de todo el país de 1,950,000,000 en 1890 á $5,000.000,000 en 1905, esos hechos no son más que una parte de la historia del estupendo progreso del país.

El número de bancos nacionales ha crecido durante ese periodo de 3,484 en 1890 hasta llegar á 5,331 en 1905. Los depósitos en los bancos ó cajas de ahorros han aumentado de $1,550,023,050 á $2,918,775,327, y el número de depositores de 4,258,893 á 7,305,443, un aumento de setenta por ciento. La producción de los establiecimientos manufactureros de $95,372,437,238 en 1890 á $13,039,279,566 en 1905. Las millas de ferro-carril en operación de 166,703 á 206,604, y el número de pasajeros conducidos por ellos de 520,439,082 á 696,908,094, ó un treinta por ciento. El número de toneladas de mercancias cargadas por los mismos aumentó de 70,102,085,125 á 171,290,310,685, siendo un aumento de más de ciento por ciento.

La estadística del Departamento de Correos alemán comunicada al Cónsul General Guenther, de Frankfort, muestra que 10,549,100 piezas de materia postal fueron transmitidas de los Estados Unidos a Alemania, y 11,722,000 de Alemania á los Estados Unidos en 1904.

Produits du sol

Le travail du fermier américain pour 1905 a été le plus important travail industriel accompli dans le monde entier. Les récoltes des deux dernière années avaient une valeur supérieure à tout l'or du monde entier recueilli depuis quatre cents ans.

Le fermier américain d'aujourd'hui est en passe de fournir la presque totalité des aliments que consomment les habitants de notre globe. Nos fermes américaines ont produit 2,708 millions de boisseaux de maïs, 969 millions de boisseaux d'avoine, 684 millions de boisseaux de froment, 35 millions de boisseaux de seigle et 183 millions de boisseaux d'orge. La récolte des grains des fermes américaines remplirait 5,625,000 wagons de marchandises ordinaires et a été évaluée à 2,126 millions de dollars.

Le fermier américain a récolté en outre 260 millions de boisseaux de pommes de terre (valeur: 138 millions de dollars), 660 millions de livres de tabac (valeur: 52 millions de dollars) et 60 millions de tonnes de foin (valeur: 605 millions de dollars).

Il y a 18,274,551 chevaux et mulets dans les fermes américaines (presque autant que dans l'Europe entière, si l'on en exclut la Russie qui possède 20,020,000 chevaux et mulets). Nos chevaux et mulets de ferme sont évalués à un milliard et demi de dollars.

En additionnant les récoltes de maïs, d'avoine, de blé, d'orge, de riz, de seigle et de sarrasin, on trouve que les États-Unis ont produit un total de 4,521 millions de boisseaux, soit 225 milliards de livres.

Le fermier américain a également récolté en 1905 des légumes divers, du sucre, des fruits, des noix, des haricots, des pois, et autres produits formant un total de 46 milliards de livres, et valant plus de 420 millions de dollars. Pris ensemble, les produits alimentaires des fermes américaines pour 1905 pesaient plus de 450 milliards de livres, et leur valeur s'élevait à plus de 3 milliards et demi de dollars. Chargés dans des wagons de marchandises, ils formeraient un train qui ferait près de quatre fois le tour du globe. Les produits du fermier américain pourraient nourrir le septième du genre humain; ils donneraient à chaque homme, à chaque femme, à chaque enfant, cent cinquante livres de grain, soit le cinquième de la quantité de grain que chacun d'eux consomme, annuellement.

La valeur totale de la production des fermes américaines pour 1905, s'élevait à 6 milliards 415 millions de dollars. Il faut inclure dans ce chiffre la valeur des céréales, des légumes, du coton, des pommes de terre, du sucre de betterave, du tabac, des oignons, des airelles, etc.

Récompense pour les inventeurs

Le roi d'Italie offrait dernièrement des récompenses substantielles pour l'invention de diverses choses. Il y aura une exposition à Milan, cet été, et le roi d'Italie versera 450,000 francs aux exposants d'inventions. Le concours est ouvert au monde entier, et les prix sont, en partie, les suivants:

1. Un prix de 50,000 francs pour un mécanisme simple et pratique ayant pour but de mettre les électriciens à l'abri du danger que présente l'exercise de leurs devoirs.

2. Cinquante mille francs pour un mécanisme d'accouplement automatique des wagons de chemin de fer.

3. Cinquante mille francs pour la meilleure organisation pour la distribution de bon lait aux quartiers populeux.

4. Cent mille francs pour les meilleurs projets de maisons pour les personnes peu fortunées.

5. Cinquante mille francs pour un bateau à moteur perfectionné.

6. Cent mille francs pour les perfectionnements apportés à la construction ou au mode d'emploi d'une machine déjà en usage et reconnue comme machine d'une haute importance,

L'offre du roi couvre non seulement le champ mécanique des inventions, elle prend encore la philanthropie en considération. Les personnes capables d'inventer une machine ont toujours reçu des récompenses rémunératrices, mais ce n'est pas toujours qu'une personne qui suggère une forme nouvelle de philanthropie se trouve récompensée—si ce n'est en esprit.

Marshall Field

Marshall Field, le multi-millionaire prince du commerce de Chicago, vient de mourir à la Holland House à New York. Une pneumonie l'emportait en une semaine. Les obsèques ont eu lieu à Chicago, et les 1,100 membres de l'Association commerciale de Chicago ont suspendu leurs opérations commerciales entre midi et une heure comme marque de respect pour le mort illustre. Les grands magasins et la chambre du commerce ont fait la même chose. M. Field passait pour le plus riche négociant due monde, sa fortune étant évaluée à 150 millions de dollars. L'histoire de sa vie est celle d'un garçon de ferme de la Nouvelle Angleterre qui se rendit dans l'ouest et grandit avec le pays, c'est-à-dire avec Chicago. Il était né en 1835.

Moulins à vent à bord des navires

On a fait à bord du navire *Arctic* un nouvel usage des moulins à vent. Pour économiser du combustible, lequel doit toujours être transporté, on construit des moulins à vent dès que le navire fut immobilisé dans les glaces. La force ainsi obtenu était employée à comprimer de l'air qui servait à son tour à actionner une dynamo et à charger les accumulateurs qui donnaient la lumière électrique au navire. L'essai fut suffisamment heureux pour que l'American Shipbuilder crut bon de recommander l'adoption de moulins à vent à bord des bateaux-phares qui servent de phares flottants le long de nos côtes.

Ces vaisseaux sont stationnés à des endroits presque toujours exposés à des courants d'air provenant d'une direction ou d'une autre, et l'on croit que les moulins à vent leur donneraient assez d'énergie pour leurs lampes de signal, pour la cuisine, et peut-être pour le chauffage du navire en hiver. On suggère que des expériences soient scientifiquement conduites, non seulement sur les bateaux-phares, mais sur les phares eux-mêmes, qui sont généralement dans des situations exposées aux vents.

Charrues pour l'exportation

Nous désirons appeler l'attention de nos lecteurs sur l'annonce de la South Bend Chilled Plow Company, que parait au recto de la couverture de ce journal. On voit dans l'annonce une charrue à soc réversible qui possède des avantages marqués. On a fait le meilleur accueil à cette charrue sur tous les marchés extérieurs où elle été introduite; les constructeurs la recommandent hautement pour les sols argileux, graveleux, pierreux, les sols durs en général. La South Bend Chilled Plow Company fait un commerce extérieur énorme; elle est prête à répondre sans délai à toutes les demandes de renseignements, toutes les commandes sont exécutées avec promptitude et avec un soin minitieux. Toute correspondance sera bienvenue.

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En el Directorio para Compradores, en la primera parte, hallarán nuestros lectores los informes en el idioma español, a fin de que puedan entablas una correspondencia más satisfactoria con nuestros anunciantes.

Buques de Velas Veloces

Puede ser que se sorprendan muchas personas que creen que los buques de velas son anticuados y lentos en comparación con los de vapor, al saber que algunos de los viajes hechos por los famosos "clipers" americanos fueron más rápidos que los de la mayor parte de los vapores del día. A la verdad, hoy mismo hay buques de velas que con una brisa regular favorable pueden navegar con más velocidad que nueve de cada diez de los vapores vagamundos que navegan en el oceano.

Marshall Field

Marshall Field, el multi-millionario y príncipe comerciante de Chicago, murió en el Hotel "Holland," de Nueva York, de una pulmonía que le tuvo en cama una semana. El funeral tuvo lugar en Chicago, donde los 1,100 miembros de la Asociación Comercial suspendieron todos sus negocios entre las doce y la una del día como un tributo de respeto á su memoria. Igual demostración hicieron los grandes bazares (department stores) y la Junta de Comercio. Mr. Marshall Field era conocido como el comerciante más rico del mundo, calculándose su caudal en unos $150.000,000. La historia de su vida es la de un mozo de campo ó estanciero de la Nueva Inglaterra que se fué al Oeste, y creció con el país; es decir, que creció con Chicago.

Productos de Nuestra Tierra

Los trabajos del hacendado y labrador americanos en 1905 han dado el más importante resultado de todos los trabajos industrials del mundo entero. El valor de las cosechas de los últimos dos años ascendió á una suma mayor que el del oro producido en todo el mundo durante los últimos cuatrocientos años.

El hacendado americano está hoy en camino de suministrar una gran proporción de los comestibles con que se alimenta el mundo. Nuestros hacendados produjeron 25.708.000,000 de fanegas de maiz, en números redondos, 969.000,000 de fanegas de avena, 684.000,000 de fanegas de trigo, 35.000,000 de fanegas de centeno, y 183.000,000 de fanegas de cebada. Esa cosecha de granos de los hacendados americanos llenaría 5.625,000 grandes carros de carga de ferro-carril, y se evalúa en $2,126.000,000, al precio por mayor.

De otros frutos de la tierra los hacendados americanos produjeron 260.000.000 de fanegas de patatas, (evaluados en $138.000,000), 660.000.000 de libras de tabaco (por valor de 52.000.000) y 60.000,000 de toneladas de heno (evaluados en $605.000.000). Hay en esas haciendas 18.274.551 caballos y mulos (casi tandos como en toda Europa, excluyendo á Rusia, que tiene 20.020,000 caballos y mulos. Nuestros caballos y mulos de campo valen unos $1,500.000,000.

Incluyendo el maiz, la avena, el trigo, la cebada, el arroz, el centeno y el trigo sarraceno, los Estados Unidos producen un gran total de 4,521.000,000 de fanegas, ó un peso de 225,000.000,000 de libras.

Los hacendados americanos también cultivaron y cosecharon en 1905 una gran variedad de otros frutos, tales como verduras, caña de azúcar, frutas, nueces, fréjoles, guisantes, etc., etc., que pesaron 46.000.000,000 de libras y de un valor de más de $420.000,000. Sumando todos los productos alimenticios de las haciendas americanas, se calcula su peso en más de 450,000,000,000 de libras, y su valor en primeras manos en más de $3,500.000,000. Para cargar en carros de carga de ferro-carril toda esa producción se necesitaría un tren tan largo que con él se podria rodear cerca de cuatro veces nuestro globo por el ecuador. Los productos de las haciendas americanas podrian alimentar á una séptima parte de la población del mundo entero, ó de la raza humana, y darle á cada hombre, mujer y niño ciento cincuenta libras de granos, ó una quinta parte de su abasto anual de granos comestibles.

El valor total de la producción de los hacendados americanos importó unos $6,415.000,000, incluyendo los cereales, legumbres, algodón, patatas azúcar de remolacha, tabaco, cebollas, frutas, etc., etc.

El Progreso de America

Ningún asunto de importancia nacional ha llamado tanto la atención durante los últimos pocos años como la concentración de poder nacional en los Estados Unidos. Este crecimiento hace parecer insignificante en comparación el de todas las demás naciones. Y si los datos estadisticos no procediesen de autoridad irrefutable, serian increibles. Charles A. Conant, el tesorero de la Morgan Trust Co., contribuye al *International Quarterly* un articulo que pinta vívidamente los rápidos pasos con que se desarrolla este país.

Para muchas personas que no han seguido el rápido desarrollo de los Estados Unidos son atolondradores esos guarismos estadisticos. Son solamente típicos del crecimiento del país. Si los depósitos de los bancos nacionales de Nueva York han subido de $310.000,000 en 1890 á 970.000,000 en 1905, y los depósitos de los bancos nacionales de todo el pais de 1,950.000,000 en 1890 á $5,000.000,000 en 1905, esos hechos no son más que una parte de la historia del estupendo progreso del país.

El número de bancos nacionales ha crecido durante ese periodo de 3,484 en 1890 hasta llegar á 5.331 en 1905. Los depósitos en los bancos ó cajas de ahorros han aumentado de $1,550.023.956 á $2.918.775.327, y el número de depositores de 4.258.893 á 7.305.443, un aumento de setenta por ciento. La producción de los establiecimientos manufactureros de $95,372.437,238 en 1890 á $13,039.279,566 en 1905. Las millas de ferro-carril en operación de 166,703 á 206,604, y el número de pasajeros conducidos por ellos de 520.439.082 á 696.908,994, ó un treinta por ciento. El número de toneladas de mercancias cargadas por los mismos aumentó de 79,192.985,125 á 171,290.310,685, siendo un aumento de más de ciento por ciento.

La estadística del Departamento de Correos alemán comunnicada al Cónsul General Guenther, de Frankfort, muestra que 10.549,100 piezas de materia postal fueron transmitidas de los Estados Unidos á Alemania, y 11.722,000 de Alemania á los Estados Unidos en 1904.

INTENTIONAL SECOND EXPOSURE

Una Agradable Celebración

Mr. William H. Caldwell, socio de la “Chadborn & Caldwell Mfg. Co.,” de Newburgh, New York, recibió recientemente de los miembros oficiales y empleados de la Compañia un magnifico dije de reloj masónico, como testimonio no solamente del aprecio de su habilidad ejecutiva, á la cual se debe el desarrollo de la Compañia, hasta el punto de ocupar el primer lugar entre los fabricantes de guadañadoras de prado, tanto en el país como en el extranjero, sino también como una muestra del gran afecto con que sus asociados y empleados miran á Mr. Caldwell por su bondadoso carácter. El suceso, de consiguiente, fué una marcada celebración de buena voluntad en que todos tomaron parte. El *Newburgh News*, periódico local, hace la siguiente relación de aquella presentación:

La presentación se efectuó en la fábrica de guadañadoras de las calles Lander y South Williams. A las 9 de la mañana se paró el funcionamiento de la maquinaria, y todos los empleados se reunieron en el segundo piso del inmenso edificio, se llamó alli á Mr. Caldwell, que trabajaba en su oficina, y le presentó la prenda Mr. Albert W. Mapes, quien le dirigió las siguientes palabras:

“Al contemplar el gran número de personas aqui reunidas, mi mente naturalmente vuela á la iniciación de esta empresa, que tuvo lugar hace catorce años. Ninguno de los que se hallaban presentes “á la inauguración de la Compania están aqui hoy con la excepción de Ud. y de mi. Sólo nosotros dos quedamos aqui de los primeros que luchamos activamente por el buen éxito de la nueva Compañia. Por supuesto que no podemos pensar en los sucesos de aquellos días sin traer á la memoria nuestro presidente, el digno padre de Ud. Antes de haber erigido esta fábrica tuvimos que lidiar con la crisis y pánico de los años 92 y 93, viendo nuestros trabajos y nuestro capital engolfarse en un insondable abismo, hasta el punto de parecer que nada nos quedaría. Pero la indomable voluntad de su padre de Ud. nos animó y fortaleció á cada uno de nosotros para continuar nuestros esfuerzos hasta que empezamos á encontrar un fondo en que contenernos. Y que tenía razón en su optimismo es evidente para todos al ver que el pequeño taller que empleaba pocos obreros ha sido transformado en la vasta fábrica en que hoy trabajamos, y en la espléndida fuerza de trabajadores, con cuyo trabajo y fidelidad podemos hoy fabrica quinientas guadañadoras cada dia.

“Hoy tenemos la más grande y con mucho la mejor habilitada fábrica de guadañadoras de prado del mundo, y, puedo añadir, la que el mejor cuerpo de operarios emplea. Habiendo comenzado con nada, después de haber estado haciendo Inglaterra guadañadoras de prado por más de sesenta años, estamos hoy fabricando anualmente más del doble de todas las que producen todos los fabricantes ingleses combinados. No hablo de esto por jactancia, sino para mostrar que á pesar de ogstáculos bastante poderosos para desanimar á la mayor parte de los hombres, hemos podido arrebatarle el triunfo á una casi derrota por medio en gran parte de la cardial cooperación de nuestros personal de empleados y obreros.

“Los encargados de los negocios y de la administración de esta empresa se han alegrado siempre de reconocer esto, y de rendirle á cada uno de sus empleados y obreros el merecido elogio por su fiel y leal apoyo. Por otra parte, los empleados y obreros no han dejado de dar muestras de lo mucho que estiman los trabajos y responsabilidad de los administradores.

“Cuando, hace dos años, se hizo evidente para todos que el que habia sido nuestro director tenía pronto que dejar para siempre sus trabajos y cuidados, nuestros pensamientos naturalmente se dirigieron á su sucesor; hubo completa unanimidad en pensar á quien le correspondía tomar su lugar, pues Ud. desde el principio se había indentificado con los detalles de los trabajos, y había demostrado tal aptitud para el objeto y al mismo tiempo tan profundo conocimiento de las posibilidades y requerimientos del negocio, que, como Ud. recordará, le autorizó la junta directiva para que usase su propio discernimiento en el mánejo de los negocios, prometiéndo apoyarle en cuanto hiciese.

“Al mismo tiempo los trabajadores en la fábrica no han titubeado en ver y apreciar lo que Ud. vale como organizador y director, y le estiman por el interés que se toma en el bienestar y comodidades de ellos, asi como por su celo en pro del bien de la Compañía. Esto se ha demostrado en varias ocasiones y de varios modos. Ahora me han pedido que expresemos sus sentimientos en el particular. No puedo menos de recordar aqui á la niña mayor de “Bird's Christmas Carols” (Villancicos de Navidad)” de Kate Douglas Wiggins. Cuando se le hizo cargo de toda la progenie de niños, y se le dijo que cuidase de que esos niños se portasen urbanamente en la comida de Navidad, contestó ella que no quería hacer eso, pues costándole bastante trabajo cuidar de sus propios modales, era demasiado para ella cuidar de los modales de toda la familia. Yo puedo tal vez expresar la estimación que you mismo siento por Ud., pero tratar de expresar la que ellos sienten me es imposible. Sólo puedo decir que se toman un gran interés por todo lo que á Ud. concierne. Por ejemplo, cuando, hace poco tiempo, fué Ud. elegido presidente de la “Business Men's Association,” y los periódicos publicaron tan brillantes profecías sobre el porvenir de la Asociación bajo la competente dirección de Ud., cada uno de ellos se sintió más grande y orgulloso, como si hubiese sido aquello un cumplimiento personal. Otra vez, cuando hace pocos días le afligió á Ud. la grave enfermedad que amenazó hacerle perder á su único hijo, todos los empleados y trabajadores de la fábrica lo sintieron como si hubiese sido una desgracia personal, y elevaro fervientes plegarias por el restablecimiento del niño. Ahora que la mano de la Providencia parece haberle devuelto la salud y lo tiene Ud. bajo su propio techo, se regocijan con Ud.

“Abrigando, pues, tanto interés por su bienestar y tanta estimación por Ud., me encargan hoy que desean y le suplique se sirva aceptar una ligera prueba de su aprecio. Esta joya es la ofrenda en que se combina la estimación de todos, y como tal es una valiosa prenda. Ellos desean que Ud. la reciba y se la ponga con el mismo placer que tienen ellos al presentársela, para que le recuerde no sólo las sublimes lecciones que ha recibido Ud. en lás ódenes en que se ha iniciado, sino que aqui en nuestra misma fábrica hay miles de corazones leales que se interesan profundamente en su porvenir y sus brillantes esperanzas.”

Mr. Caldwell al recibir la prenda dijjo que él (Mr. Mapes) habían estado juntos bastante tiempo para saber que él no era “speechmaker” (pronunciador de discursos), pero que les daba expresivas gracias á sus empleados, y les aseguraba á sus oyentes que de ningún cuerpo de hombres apreciaria semejante regalo tanto como del personal de su fábrica.

La joya es de oro con cubierta de ónix y montada con ocho diamantes y once rubies. En una cara están representados los emblemas de los Caballeros Templarios, y el reverso representa los emblemas del grado 32 del Rito Escocés, abriéndose el águila sobre goznes y revelando la insignia.

Viaje al Polo de una Nave Aerea

Mr. Walter Wellman, el corresponsal del *Record-Herald* de Chicago, que hace varios años encapezó una expedición polar en buque y trineo, que no tuvo éxito, ha sido comisinado para construir una nave aera para ir á buscar el Polo, con instrucciones de enviar sus informes por telégrafo sin alambres. M. Santos Dumont, el famoso aeronauta de París, actuará como ingeniero consultor para la construcción y equipo de la nave aérea, y ha ofrecido acompañar la expedición como guía y director. Mr. Wellman dice que su nave aérea estará acabada para el primero de Mayo, pues se está construyendo en París, y que la expedición partirá de Spitzbergen en Julio. La nave aérea llevará 5,500 libras de combustible, y un carro en forma de bote, en que cabrán cómodamente cinco hombres, con provisiones de boca y otras necesidades para setenta y cinco dias, y trineos ó narrias de motor para llevarlos sobre el hielo, asi como una habilitación para telegrafía sin alambres. Un cable-guia de acero colgado de la barquilla arrastrará su extremidad inferior sobre el hielo para conservar la nave á una altura medianamente estable, y mantener constante su verticalidad.

Nuestro Presidente

El Presidente Theodore Roosevelt no tuvo que vencer las dificultades de la pobreza; pero cuando niño tuvo que lidiar tenazmente con esa persistente y angustiosa enfermedad que se llama “asma.” Pero se propuso combatirla con tenacidad hasta vencerla, y lo consiguió felizmente. Probablemente fué aquella batalla la más reñida que jamás ha emprendido, y al terminarla felizmente se encontró con que no sólo habia vencido aquel mal, sino que durante la lucha habia adquirido un enorme capital de salud y vigor que tanto le ha servido después. La experiencia que adquirió la aplicó más tarde á los libros, y es evidente que al principio consideró sus trabajos en la política como inferiores á sus empresas literarias. En los primeros años de la década que empezó en 1890, hablando con un amigo, exclamó casualmente: “En 1899! Vaya, en ese año seré un literato de mediana edad!” Esto lo dijo con seriedad. Sin embargo, antes de terminar la última década del siglo diez y nueve ya había tomado parte activa, luchado en varias grandes campañas políticas, había sido Secretario Asistente de la Marina, servido en la Guerra Hispano-Americana, y había sido elegido Gobernador del Estado de Nueva York, y Vice Presidente de los Estados Unidos. Luégo al ser asesinado el Presidente McKinley, le sucedió como Presidente. De manera que, además de ser un literato de mediana edad, es también un gran factor de nuestra historia moderna.

Molinos de Viento à Bordo de un Buque

Un nuevo uso de los molinos de viento se ha hecho á bordo del vapor explorador “Artic.” Con el fin de ahorrar el combustible, todo el cual se ha de llevar á bordo, cuando se halló el buque aprisionado en el hielo del Oceano Artico, se erigió á bordo una serie de molinos de viento, usándose su fuerza para comprimir el aire, y el aire comprimido para hacer funcionar un dinamo y generar electricidad, acumulándola en baterías acumuladoras para el alumbrado del buque en las prolongadas noches boreales. El experimento ha tenido suficiente buen éxito para justificar la recomendación del *American Shipbuilder* de que se adopte ese nuevo método para suministrar la luz de los faros flotantes (light-ships) á lo largo de nuestras costas.

Hallándose esas barcos-faros donde están expuestos á casi constantes vientos en todas direcciones, se cree que podrían suministar los molinos de viento suficiente corriente eléctrica, no sólo para mantener la luz del faro, sino tambien para cocinar, y posiblemente para calentar el barco en el invierno. Se sugiere que se someta semejante experimento á una prueba detenida, no sólo en los faros flotantes, sino también en los faros de tierra firme, que generalmente se hallan en puntos expuestos á todos los vientos.

Chicago como Centro de la Industria del Hierro

En cien años se verá probablemente el agotamiento de las fuentes actuales del mineral de hierro, vice el Dr. Kenneth Leith, profesor de la Universidad de Wisconsin, que dió una conferencia sobre el asunto el 9 de Febrero ante la Sociedad Geográfica. Dice el Profesor Leith que los depósitos en la actualidad conocidos de mineral de hierro de alto grado de los Estados Unidos se agotarán en un periodo de tiempo comparativamente corto, y se tendrá entonces que apelar á los depósitos de mineral de grado inferior, dando por resultado un cambio en las localidades geográficas de las grandes plantas ó fundiciones de hierro y acero del país. “Es probable que la entrada de los minerales de hierro de grado inferior en la industria del hierro tendrá el efecto de llevar los altos hornos más cerca de los depósitos ó fuentes de abasto,” dice el Dr. Leith, y esto significa que habrá que trasladar los centros de la industria del hierro de Pittsburgh y otros lugares del Este á Chicago y otros lugares más al Oeste. Hay depósitos de mineral de hierro de grado inferior en los Estados de Colorado y Wyoming, pero pasarán muchos años antes de que lleguen á ser factores de importancia comercial.

Premios para los Inventores

El rey de Italia anunció recientemente que ofrecia un premio de consideración por la invención de varias cosas. En Milán se celebrará este verano una Exposición, y el rey de Italia distribuirá 450,000 francos entre los expositores de inventos en esa Exposición. Todo el mundo podrá tomar parte en ese certamen ó competencia, y los premios son en parte los siguientes:

Primero—Un premio de 50,000 francos por un invento sencillo y manejable para proteger á los mecánicos de la electricidad contra los peligros que corren en el desempeño de su deber.

Segundo—Cincuenta mil francos por la invención de un acoplador ó enganche de carros de ferro-carril automático.

Tercero—Cincuenta mil francos por el mejor plan ú organización para abastecer á la gente pobre de leche pura y sana.

Cuarto—Cien mil francos por los mejores planes para casas de un solo piso para la gente pobre.

Quinto—Cincuenta mil francos por el invento de una lancha de motor.

Sexto—Cien mil francos por un mejoramiento en la construcción ó funcionamiento de una máquina ya usada y reconocida como de verdadero mérito.

No sólo ofrece el rey premiar los inventos mecánicos, sino también la filantropia. Las recompenas para aquellos que han podido inventar aparatos ó mecanismos mecánicos han sido siempre liberales; pero no siempre ha sido premiada la persona que ha sugerido una forma de filantropía, á no ser en su propia mente.

Existe un faro ó fanal que no se encuentra en ningún mapa marítimo. Está situado en el centro del gran desierto de Arizona, y marca el lugar donde existe un pozo que suministra agua dulce cristalina á los viajeros.

Nuestras Exportaciones de Instrumentos Agrícolas

Desde el año de 1899, cuando las exportaciones de los Estados Unidos por primera vez sobrepujaron á la Gran Bretaña en este ramo fabril, ha sido esta nación, sin interrupción alguna, la más grande exportadora de instrumentos y maquinaria agricolas del mundo. Ni aun entre los que se dedican al comercio de este producto, realizan muchos cuán importante es el influjo que tienen esas exportaciones en el buen éxito de este ramo de la industria fabril, ni cuán esencial viene siendo una salida por exportación para la prosperidad de la industria en general. En el censo del año de 1900 el número de establecimientos dedicados á la manufactura de instrumentos de labranza se manifiesta que asciende á 715, los cuales emplean 46.582 pares de brazos y 10.046 empleados de escritorio y otros que reciben sueldos. El valor de la producción anual de esta industria ascendió á $101.207,428, contra $81.-271,651 diez años antes; $68.640,480 en 1880, $52.066,875 en 1870, $20.831,904 en 1860, y $6.842,011 en 1850.

Rápido, sin embargo, como ha sido ese crecimiento, es importante notar que nuestras exportaciones en este ramo han aumentado con mayor rapidez, indicando asi que como se ha llegado á los limites del mercado del país, nuestros manufactureros se han lanzado hacia afuera, buscando con mayor energia nuevos campos en que operar. En 1850 á 1860 no se clasificaban separadamente los instrumento de hacienda ó labranza, cosa que indica que el comercio extranjero en este ramo era demasiado reducido para llamar mucha atención. En 1870 las exportaciones de aperos ó instrumentos de labranza, según el respectivo informe, se elevaron á 1.068,170 ó poco más de 2 por ciento sobre la década anterior. En 1880 habian aumentado $2.245.742, ó 3.27 por ciento. En 1890 habian avanzado todavía á $3.859,184, ó 4.74 por ciento. Esos pequeños aumentos, sin embargo, indican que durante aquellas dècadas nuestros manufactureros sólo podian hacer muy poco más que abastecer el mercado nacional.

De 1900 acá los datos estadisticos cuentan una historia muy differente. Aquel mismo año aumentaron las exportaciones á $16.099.-149, ó 15.9 por ciento. En los dos años siguientes permanecieron estacionarias las exportaciones, y es probable que hubiese el mismo aumento, puesto que no aumentó mucho la produccion en aquel periodo. En 1903 de un brinco llegaron las exportaciones á $21.006.-622, y el año siguiente á $22.749.635. En el año fiscal que terminó en Junio del año próximo pasado bajaron un poco las exportaciones, ascendiendo á $20.721,741. El promedio de esos tres años puede considerarse como un aumento de 20 por ciento de la producción, poco más ó menos, y esa proporción indica, de consiguiente la importancia de una salida por exportación para nuestros fabricantes de instrumentos y maquinaria de labranza. Cualquiera de nuestros manufactureros sabe lo que la pérdida de una quinta parte de esas exportaciones significa para él. Considerando esa industria en conjunto, los mercados extranjeros consumen hoy una quinta parte de nuestra producción total de instrumentos agricolas. Una proporción tan grande es de vital importancia, y de aqui que nuestros manufactureros de instrumentos agrícolas inteligentes se hallen al frente en la lucha para proteger la posición que han adquirido en los mercados extranjeros, y se opongan decididamente á los que tratan de enredar nuestro comercio con el extranjero, exponiendo la nación á inevitables controversias arancelarias.

Afortunadamente el mercado extranjero para nuestros aperos ó instrumentos de hacienda de campo, al contrario que para nuestros algones, ofrece vastas oportunidades. Una de las circunstancias más notables que presentan los datos de nuestras exportaciones, tomando los de una larga serie de años, consiste en el modo de desarrollarse una nueva salida para tomar el lugar de otra, siempre que ésta por un motivo cualquiera ha decaído en algún país que promete. Asi un año ha sido Rusia nuestro mejor parroquiano; otro año el Canadá, y otro la Argentina. La Gran Bretaña, Francia, Alemania y Austria son también mercados que regularmente nos toman más de un millón en instrumentos y máquinas agrícolas al año. Méxiso es un buen parroquiano, comprándonos constantemente por valor de $300.000 á $400,-000 al año. Cuba es un mercado que promete bajo el tratado de reciprocidad, habiendo aumentado sus compras, de $55.756 en 1903 á $208,908 en el año fiscal de 1905.

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Der Vollwerth amerikanischer landwirthschaftlicher Produkte betrug in 1905 6.415.-000.000 Dollar Alles miteingeschlossen, wie: Cerealien, Gemüse, Baumwolle, Kartoffeln, Rübenzucker, Taback, Zwiebeln, Beeren, u. s. w.

Unser Präsident

Präsidint Theodore Roosevelt brauchte nicht erst durch die Schule der Armuth zu gehen. Doch hatte er eine schlimmere Schule durchzumachen. Als Kind litt er an eine heikle widerliche, stets wiederkehrende, niederdrückende Krankheit "Asthma" genannt. Er beschloss sie zu bewältigen—und es gelang ihm auch. Es darf wohl kaum bezweifelt werden, dass dieser Kampfen hatte; doch als er endden er je zu kämpfen hatte; doch als er endlich als Sieger daraus hervortrat, fand er zugleich, dass er nicht allein seine Gesundheit gerettet und sie wiedergewonnen hatte, aber er hatte sich auch neue Kraft und Energie erworben, die ihm für die Zukunft nützlich werden sollten. Die von ihm gesammelten Erfahrungen finden wir später in seinen Büchern beschrieben. Es steht fest, dass er erst seiner politischen Thätigkeit und dann seiner literarischen Unternehmungen jede Aufmerksamkeit zuwandte. Früh in den '90er Jahren, als er zufällig mit einem Freunde sprach, bemerkte er beiläufig: "In 1899?" "Nun, dann werde ich bereits ein Literat in mittleren Mannesalter geworden sein." Er nahm es zwar ernst als er diesen Ausspruch machte. Doch, vor Beendigung des letzten Jahrzehntes des 19. Jahrhunderts kämpfte er bereits in der Wahlschlacht verschiedener grosser Wahlen, wurde Assistent des Flottensekretärs, focht im spanisch-amerikanischen Kriege, wurde zum Gouverneur des Staates New York erwählt und daraufhin Vice-Präsident der Vereinigten Staaten. Später, als Präsident McKinley er-

Nuestras Exportaciones de Instrumentos Agrícolas

Desde el año de 1899, cuando las exportaciones de los Estados Unidos por primera vez sobrepujaron á la Gran Bretaña en este ramo fabril, ha sido esta nación, sin interrupción alguna, la mas grande exportadora de instrumentos y maquinaria agricolas del mundo. Ni aun entre los que se dedican al comercio de este producto, realizan muchos cuán importante es el influjo que tienen esas exportaciones en el buen éxito de este ramo de la industria fabril, ni cuán esencial viene siendo una salida por exportación para la prosperidad de la industria en general. En el censo del año de 1900 el número de establecimientos dedicados á la manufactura de instrumentos de labranza se manifiesta que asciende á 715, los cuales emplean 46,582 pares de brazos y 10,046 empleados de escritorio y otros que reciben sueldos. El valor de la producción annual de esta industria ascendió á $101,207,428, contra $81,271,651 diez años antes; $68,640,480 en 1880, $52,066,875 en 1870, $20,831,904 en 1860, y $6,842,611 en 1850.

Rápido, sin embargo, como ha sido ese crecimiento, es importante notar que nuestras exportaciones en este ramo han aumentado con mayor rapidez, indicando asi que como se ha llegado á los limites del mercado del país, nuestros manufactureros se han lanzado hacia afuera, buscando con mayor energía nuevos campos en que operar. En 1850 a 1860 no se clasificaban separadamente los instrumento de hacienda ó labranza, cosa que indica que el comercio extranjero en este ramo era demasiado reducido para llamar mucha atención. En 1870 las exportaciones de aperos ó instrumentos de labranza, según el respectivo informe, se elevaron á 1,068,170 ó poco más de 2 por ciento sobre la década anterior. En 1880 habían aumentado $2,245,742, ó 3.27 por ciento. En 1890 habian avanzado todavia á $3,859,184, ó 4.74 por ciento. Esos pequeños aumentos, sin embargo, indican que durante aquellas décadas nuestros manufactareros sólo podian hacer muy poco más que abastecer el mercado nacional.

De 1900 acá los datos estadísticos cuentan una historia muy differente. Aquel mismo año aumentaron las exportaciones á $16,099,140, ó 15.9 por ciento. En los dos años siguientes permanecieron estacionarias las exportaciones, y es probable que hubiese el mismo aumento, puesto que no aumentó mucho la produccion en aquel periodo. En 1903 de un brinco llegaron las exportaciones á $21,006,022, y el año siguiente á $22,749,035. En el año fiscal que terminó en Junio del año próximo pasado bajaron un poco las exportaciones, ascendiendo á $20,721,741. El promedio de esos tres años puede considerarse como un aumento de 20 por ciento de la producción, poco más ó menos, y esa proporción indica, de consiguiente la importancia de una salida por exportación para nuestros fabricantes de instrumentos y maquinaria de labranza. Cualquiera de nuestros manufactureros sabe lo que la pérdida de una quinta parte de esas exportaciones significa para él. Considerando esa industria en conjunto, los mercados extranjeros consumen hoy una quinta parte de nuestra producción total de instrumentos agricolas. Una proporción tan grande es de vital importancia, y de aqui que nuestros manufactureros de instrumentos agrícolas inteligentes se hallen al frente en la lucha para proteger la posición que han adquirido en los mercados extranjeros, y se opongan decididamente á los que tratan de enredar nuestro comercio con el extranjero, exponiendo la nación á inevitables controversias arancelarias.

Afortunadamente el mercado extranjero para nuestros aperos ó instrumentos de hacienda de campo, al contrario que para nuestros algodones, ofrece vastas oportunidades. Una de las circumstancias más notables que presentan los datos de nuestras exportaciones, tomando los de una larga serie de años, consiste en el modo de desarrollarse una nueva salida para tomar el lugar de otra, siempre que ésta por un motivo cualquiera ha decaido en algún país que promete. Asi un año ha sido Rusia nuestro mejor parroquiano; otro año el Canadá, y otro la Argentina. La Gran Bretaña, Francia, Alemania y Austria son tambien mercados que regularmente nos toman más de un millón en instrumentos y máquinas agricolas al año. Mexiso es un buen parroquiano, comprándonos constantemente por valor de $300,000 á $400,000 al año. Cuba es un mercado que promete bajo el tratado de reciprocidad, habiendo aumentado sus compras, de $55,750 en 1903 á $208,008 en el año fiscal de 1905.

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Der Vollwerth amerikanischer landwirthschaftlicher Produkte betrug in 1905 6.415.000.000 Dollar Alles miteingeschlossen, wie: Cerealien, Gemüse, Baumwolle, Kartoffeln, Rubenzucker, Taback, Zwiebeln, Beeren, u. s. w.

Unser Präsident

Präsidint Theodore Roosevelt brauchte nicht erst durch die Schule der Armuth zu gehen. Doch hatte er eine schlimmere Schule durchzumachen. Als Kind litt er an eine heikle widerliche, stets wiederkehrende, niederdrückende Krankheit "Asthma" genannt. Er beschloss sie zu bewältigen—und es gelang ihm auch. Es darf wohl kaum bezweifelt werden, dass dieser Kampfen hatte; doch als er endden er je zu kämpfen hatte; doch als er endlich als Sieger daraus hervortrat, fand er zugleich, dass er nicht allein seine Gesundheit gerettet und sie wiedergewonnen hatte, aber er hatte sich auch neue Kraft und Energie erworben, die ihm für die Zukunft nützlich werden sollten. Die von ihm gesammelten Erfahrungen finden wir später in seinen Büchern beschrieben. Es steht fest, dass er erst seiner politischen Thätigkeit und dann seiner literarischen Unternehmungen jede Aufmerksamkeit zuwandte. Früh in den '90er Jahren, als er zufällig mit einem Freunde sprach, bemerkte er beiläufig: "In 1899?" "Nun, dann werde ich bereits ein Literat in mittleren Mannesalter geworden sein." Er nahm es zwar ernst als er diesen Ausspruch machte. Doch, vor Beendigung des letzten Jahrzehntes des 19. Jahrhunderts kämpfte er bereits in der Wahlschlacht verschiedener grosser Wahlen, wurde Assistent des Flottensekretärs, focht im spanisch-amerikanischen Kriege, wurde zum Gouverneur des Staates New York erwählt und daraufhin Vice-Präsident der Vereinigten Staaten. Später, als Präsident McKinley er-

INTENTIONAL SECOND EXPOSURE

mordet wurde, folgte ihm Theodore Roosevelt als Präsident. So wurde er um dieselbe Zeit nicht allein Literat im mittleren Mannesalter er wurde, vielmehr, ein grosser Faktor, in der epochemachenden Weltgeschilchte seines Zeitalters.

Luftschiff nach dem Pole

Herr Walter Wellman, Korrespondent des Chicago *Record-Herald* der vor mehreren Jahren eine erfolglose Pole-Expedition mit Schiff und Schlitten leitete, wurde nun beauftragt ein Luftschiff zu bauen und mit demselben auszuziehen, um endlich den Pol zu finden. Seine Berichte sollen mit drathloser Telegraphie gemacht werden. Herr Santos Dumont, der berühmte Luftsegler von Paris, soll als rathertheilender Ingenieur in der Konstruktion und Ausstattung dieses Luftschiffes fungiren, ja er hat sich sogar erboten als Leiter und Wegweiser die Expedition zu begleiten. Herr Wellman glaubt dass sein Schiff am 1. Mai zur Reise bereit sein wird und soll die Reise von Spitzbergen im Juli angehen, weil das Schiff in Paris konstruirt wird. Das Schiff wird 5.500 Pfund Beheizungsmaterial mit sich führen nebst einem Wagen in der Form eines Bootes, worin fünf Personen 75 Tage lang bequem mit Speise und anderem Proviant untergebracht werden können. Zur Ausrüstung gehören weiter Motorschlitten, die sie über Eis und Feld im Falle der Noth geleiten und eine vollständige Ausstaffirung der drathlosen Telegraphie. Ein Schutzseil aus konischem Stahl soll das Ganze von unten aus übers Eis, wenn nöthig, ziehen, das Schiff jedoch auf einer ziemlich sichern Höhe haltend; das Fahrzeug soll dadurch in vertikaler Stabilität aufrecht erhalten werden.

Windmotoren zur Dienstleistung an Bord von Schiffen

Die Windmühle wurde am Bord des Forschungs-Schiffes "Arctic" in neuer Verwendung nutzbar gemacht. Um Beheizungsmaterial zu sparen, das auf dem Schiff doch mitgeführt werden muss, wurden eine Anzahl von Windmotoren errichtet als das Schiff eingefroren wurde. Kraft wurde durch komprimirte Luft angewandt, die zum Betriebe eines Generators verwendet war und Dampf- Akkumulatoren zur Beheizung des Schiffes. Dieses neue System hat sich zur Genüge erfolgreich erwiesen, so dass selbst der "American Shipbuilder" die Annahme von Windmotoren am Bord von Schiffen die als Leuchtthürme dienen, und an unseren Küsten herumpatruilliren, auf's Wärmste zu empfehlen.

Diese Schiffe bewegen sich gewöhnlich wo sie stets anhaltenden Winden ausgesetzt sind, die von einer Richtung in die anderer hin sie treiben. Es wird daher auch angenommen, dass solche Winde genug Strom bieten sollten, nicht allein die Signallampen zu beleuchten, sondern für Kochzwecke, ja sogar im Winter zur Beheizung des Schiffes. Gen. Blatt schlägt vor, dass dieses Experiment sorgfältig geprüft werden möge, nich allein auf den diversen Feuerschiffen sondern auch auf den Leuchtthürmen selber, die meistens doch in freistehenden Lokalitäten sich befinden.

Thomas Edison

Thomas Edison schreibt oft den Anfang seiner Karriere dem Momente zu, als er das Leben eines Knaben gerettet hatte. Der Vater dieses Knaben war Stationsagent und belohnte Edison dadurch, indem er ihn das Telegraphiren lehrte. Doch vorher schon hatte Edison mit schwerer, systematischer Arbeit begonnen. Er wanderte von der Erie-Grafschaft, Ohio, nach Detroit, Michigan, und als elfjähriger Knabe bereits versuchte er es, Newton's "Prinzipien" zu lesen. Allerdings erwies es sich zu schwer für ihn; um sich für dieses sehnsüchtige Lesen jedoch gut vorbereiten zu können, beschloss er zuvörderst die Detroit'sche Freibibliothek durchzulesen. Das durchzusetzen wurde ihm leider ebenfalls vereitelt, denn er musste nun anfangen durch Arbeit sein Leben zu fristen. Er wurde Eisenbahnjunge. Und abgesehen von der Thatsache dass er Zeitungen verkaufte, gab er auf dem Zuge ein Blatt selbst heraus und errichtete später ein kleines Laboratorium in dem Bagagenraum des ihm angewiesenen Waggons. Als der Schaffner einst die Thätigkeit des experimentirenden Knaben bemerkte, versetzte er ihm einen Schlag auf den Kopf mit solcher Wucht, dass er an den Folgen desselben später ertaubte. Bald darauf nahm Edison Stellung als Telegraphist an. Eine der ersten von ihm gemachten Erfindungen bestand aus einem Mechanismus, welcher einen Eimer voll Wasser, sorgfältig angehängt, umzukippen verursachte. Wenn Edison ermüdet und einige Minuten des Schlafes pflegen wollte geschah es immer, dass er sofort aufgeweckt wurde sobald ein Telegram einlief. Dann kamen die Wanderjahre. Zuerst im Mittelwesten, durch Kanada und endlich kam er nach Boston. Hier erhielt er seine erste Stunde auf dem Gebiete der Erfindungen. Er patentirte eine Wählmaschine, Niemand wünschte, jedoch, dieselbe anzunehmen—die einzig gute Lektion die er aus dieser Erfindung erhielt war die Lehre: nur solche Erfindungen in die Welt zu bringen und zu erschaffen die die Menschheit wünscht und braucht. Schwer war seine fernere Laufbahn; viele der Erfindungen die nun folgten. Unter Anderem erfand er auch eine Methode, derzufolge zwei oder vier Telegramme auf demselben Drahte geschickt werden konnten. Selbstverständlich wurde diese Erfindung ein ungeheueres Sparmittel für die Telegraph-Gesellschaften. Obgleich er viel des Guten bereits erfunden hatte, war er doch recht arm als er endlich nach New York kam. Doch dort trat seine grösste Thätigkeit sofort zum Vorschein. Was er sein grösstes Auffassungs-Vermögen nannte: Schnell zu erfassen was gemacht werden sollte, und dann, Verstand genug zu besitzen wie es zu thun, kam hier zur vollen Geltung. Der Mechanismus der "Gold- und Aktien-Telegraphen Gesellschaft" wurde plötzlich zerbrochen und Niemand der Anwesenden verstand wie denselben auszubessern. Edison kam ins Zimmer und legte geschickt seinen bewandten Finger auf den Mechanismus. Die Schwierigkeit war bald beseitigt. Sofort erhielt er Anstellung. In kurzer Zeit bekam er 40.000 Dollar für eine verbesserte Aktkien-Tickmaschine. Und seitdem hat er unzählige Patente herausgenommen, von denen sehr viele ganz neue Phasen auf dem Gebiete der Wissenschaft wurden, fortschrittlich für die Welt.

Kautschukreifen

Die Firma Morgan & Wright, Chicago, U. S. A., ist Amerikas bedeutendster Fabrikant von Kautschukreifen sowohl für Fahrzeuge wie auch für Motoren. Mit einer zwanzigjährigen Erfahrung auf diesem Gebiete wenden sie die vorgeschrittensten Methoden für die Perfektirung ihrer Waare an und da sie nun ausserdem auch prima Materialien zur Herstellung ihrer Erzeugnisse gebrauchen, können ihre Artikel in keiner Weise übertroffen werden. Diejenigen unserer geschätzten Leser die sich für ein derartiges Assortiment interessiren, sollten es ja nicht unterlassen, an die Firma sofort zu schreiben und sich Preiskourante und Verkaufsbedingungen zustellen zu lassen.

Belohnung für Erfinder

Der König von Italien erliess jüngst eine Bekanntmachung derzufolge er bedeutende Preise für event. Erfindungen auf den verschiedenen Gebieten aussetzt. Diesen kommenden Sommer wird in Mailand eine Ausstellung eröffnet werden auf welcher 450.000 Francs von ihm für solche Erfinder ausgesetzt sind, die sich als glückliche Löser folgender Probleme und Aussteller der event. Objekte erweisen. Der Wettbewerb ist Jedem offen und die ausgesetzten Preise solien wie folgt sein:

(1) Ein Preis von 50.000 Francs für eine einfache doch ausführbare Erfindung zum Schutze der Arbeiter der verschiedenen elektrischen Branchen, die bei Ausübung ihrer gefährlichen Berufe steter Gefahr ausgesetzt sind.

(2) Ein Preis von 50.000 Francs für eine Vorrichtung für automatische Eisenbahn-Kuppelung.

(3) Ein Preis von 50.000 Francs für die beste Methode zur Lieferung nahrhafter Milch in dichtbevölkerte Stadttheile.

(4) Ein Preis von 100.000 Francs für die allerpraktischesten Pläne zur Erbauung von Hütten für arme Familien.

(5) Ein Preis von 50.000 Francs für ein verbessertes Motorboot.

(6) Ein Preis von 100.000 Francs für die Verbesserung sowohl in der Herstellung wie auch im Betriebe einer bereits in Anmeldung gebrachten Maschine deren wirkliches Verdienst schon Anerkennung gefunden hat.

Das Anerbieten des italienischen Königs erstreckt sich nicht allein auf das Gebiet der mechanischen Erfindungen, sondern zieht auch die Philantropie in Betracht. Die Belohnung Derjenigen die gewisse mechansche Erfindungen zustande bringen konnten, wurde stets in liberalster Weise vergütet; est ist, jedoch, noch nie vorgekommen, dass eine Person die eine gewisse Form von Philantropie erdacht irgend wie belohnt worden wäre—es sei denn im eigenen Herzen.

Niagara und Viktoria

Seit die Aufmerksamkeit der grossen Welt auf die riesigen Viktoria-Fälle in Süd-Afrika gelenkt worden ist, sind gar viele Vergleiche zwischen diesen beiden Wasserfällen gezogen worden. Bei einem Vortrage über "Kraft-Vertheilung" die Professor W. E. Ayrton letzten August in Johannisburg hielt wurde die Frage erörtert: "Welches ist der wirkliche Kraft-Vergleich zwischen den Viktoria- und den Niagara Wasserfällen?" Seine Antwort war, dass der Strom der letzteren zwischen 62 Millionen und 104 Millionen Gallonen Wassers per Minute differire während der im Viktoria im August kaum fünf Millionen Gallonen ausmachte. Der nutzbare Durchschnittsfall des Niagara beträgt 160 Fuss, der des Viktoria Falles 380 Fuss. Da nun der kleinste Niagara Strom drei Millionen Pferdekräfte reräsentirt, beträgt der Viktoria Fluss nur 580,000 Pferdekräfte. Wenn, somit, der Bericht örtlicher Authoritäten angenommen werden darf, demzufolge der Viktoriastrom im November blos zweieinhalb Millionen Gallonen per Minute lieferte, so ist die geringste Pferdekraft dort wohl kaum ein Zehntel des Niagara-Minimums. Der Maximumstrom des Viktoriafalles ist nicht angeführt worden.

Die Grenze des Fernsprechens

Herr John Gavey, der neue Präsident der "Institution of Civil Engineers" bemerkte in einer jüngst von ihm gehaltenen Rede, dass geringe Konkurenz zwischen der Telephonie und Telegraphie bestehen werde, sobald eine gewisse kritische Distanz zwischen den beiden einmal erreicht sein wird. Gar viel Aufmerksamkeit ist der Frage seit längerer Zeit bereits geschenkt worden. Und welche die äussersten Grenzen für dienstfähiges, kommerzielles Sprechen sei? Alles in Allem in Betracht ziehend und grossen Raum für event. Sicherheit zurücklassend, wird allgemein zugegeben, dass 42 bis 46 Meilen als eine wirksame kommerzielle Grenze für den englischen Norm-Telephonkabel betrachtet werden darf. Herr Gavey ist der Ansicht, dass die drathlose Telegraphie die inländischen Verbindungsmethoden weder ersetzen können noch Konkurrenz zu bieten imstande sein werden. Das Problem die sogen. Submarinkabel für Telephone langer Strecken dienstbar zu machen soll, nach Herrn Gavey, erst in Zukunft ermöglicht werden.

Die Eisenbahnen der Welt

Die Vereinigten Staaten stehen an der Spitze der Eisenbahnindustrie, sowohl hinsichtlich der Meilenausdehnung als auch hinsichtlich des Wuchses ihrer Ausdehnungen. Die Totaleisenbahn-Strecke der Welt belief sich in 1904 auf 534.000 Meilen, von denen 211.074 Meilen den Vereinigten Staaten zuzuschreiben sind, 35.323 Meilen dem europaischen Russland, 32.907 Meilen Deutschland, 28.102 Meilen Frankreich, 26.950 Meilen Indien, 24.120 Meilen Oesterreich-Ungaren, 22.634 Meilen dem Vereinigten Königreiche, 19.011 Meilen Kanada, 15.560 Meilen Afrika, 14.113 Meilen Australien, 10.356 Meilen Mexiko, 9.951 Meilen Italien, 9.368 Meilen Brasilien, 7.697 Meilen Schweden, 7.322 Meilen Sibirien, Mantschurien und anderen asiatischen Besitzungen Russlands, 4.495 Meilen Japan und 1.170 Meilen China. Erst seit 1835 ist dieser enorme Wuchs hier zu verzeichnen, denn zu jener Zeit belief sich die Meilenzahl aller dann existirenden Eisenbahnen in den Vereinigten Staaten nicht über 1.000 Meilen, un genau zu sein thatsächlich nur 1.098 Meilen. In 1850 stieg die Totalmeilenzahl bis auf 9.021; gegen 1860 bis auf 30.626 Meilen; in 1865 bereits auf 35.085 Meilen. In dem Jahrzehnt von 1865 bis 1875 verdoppelte sich die Meilenausdehnung, denn in eben jenen Jahre erreichte sie 74.096 Meilen. Die Totalausdehnung im Jahre 1885 belief sich auf 128.320 Meilen, im Jahre 1895 auf 181.115 Meilen und im Jahre 1900 war die Ausdehnung bereits auf 194.262 Meilen gestiegen. Im letzten Jahre war die totale Ausdehnung 217.328 Meilen und sollen sich ihre Totalkosten Poor's "Almanach" von 1905 zufolge auf nicht weniger als elf zwei drittel Billionen Dollar belaufen, die gewaltige Summe, die nicht weniger als fast ein Drittel der siebenunddreissig Billionen ausmacht, welche die Gesammtkoksten aller Eisenbahnen der Welt repräsentirt.

Amerikanische Schubkarren in Auslande

Noch vor einigen Jahren war der Karren wie auch der Schubkarren eine ganz unbedeutende Industrie, allgemein als eine inländische Produktion bekannt oder wurde von lokalen Wagnern mit der Hand hergestellt. Wie wenig träumten die Leute dann, dass es in kurzer Zeit Fabrikanlagen geben werde welche hunderte von Angestellten beschäftigen jährlich mehrere Millionen Fuss Bretter und hunderte Tons Eisen und Stahl zur Herstellung verbrauchen würden, oder dass dieser Artikel je ein so wichtiger Posten im internationalen Handel werden würde, wie es heute der Fall ist.

Die "Lansing Karrenfabrik-Gesellschaft," Lansing, Mich., U. S. A., besitzt eine Landesstrecke von 12.000 Morgen dichten Waldes, voll strotzender Eichen, Elmen, Nussbaumen und anderen werthvollen harten Holzsorten.

Die Gesellschaft hat eine riesige Bandsäge-Fabrik die Tag und Nacht arbeitet und jeden Arbeitstag über 50.000 Fuss Bretter schneidet. Sie haben eine vollstandige Dorfansiedelei um ihre Fabrik gebaut, reizende kleine Wohnhauser fur den alleinigen Gebrauch ihrer Angestellten enthaltend.

Die Gesellschaft fabrizirt in ihren Fabriken die meisten Theile und Stücke ihrer Holzkarren; die Eisen- und Stahltheile, hingegen, werden aus ihrer Lansingfabrik geliefert, die sich ausschliesslich mit der Herstellung von Stahlkarren, Streichbrettern, Stahlrahmen und anderen Stahlartikeln für den Bauhandel befasst.

Die Erzeugnisse obiger Gesellschaft werden jetzt von der Regierung der Vereinigten Staaten beim Bau des Panama-Kanals verwant. Auch liefert sie das Material für Eisenbahnbauten in Argentinien, für die Fabrikationsminen in Süd-Afrika und Mexiko, wie auch fur die diversen Gartenanlagen der englischen und anderer Höfe und vieler auswärtiger Länder. Es beweist dies zur Genüge wie vielseitig und vortrefflich ihre Erzeugnisse sind. Die Firma stellt eine enorme Anzahl verschiedener Sorten und Typen von Holz- und Stahlschubkarren diverser Grösse her. Auch liefert sie Laden- und Speicher-Trucks besonderer Muster für besondere Zwecke, Baukarren und Werkzeuge, Streichbretter, u. s. w.

Ihr Katalog No. 8, 160 Seiten stark, der soeben erschienen ist, giebt das komplette Assortiment ihrer Erzeugnisse an. Derselbe wird auf Wunsch Händlern franko versandt. Man schreibe nur: The Lansing Wheelbarrow Co., B-21 Produce Exchange, New York City.

Der Fortschritt Amerikas

Kein Thema das nationale Wichtigkeit erheischt, hat während der letzten paar Jahre grössere Aufmerksamkeit hervorgerufen als die Koncentration der nationalen Macht in Amerika. Ein Vergleich dieser Thatsache nur lässt alle anderen Nationen schon schwach und gering erscheinen und wären die Ziffer nicht durch unantastbare Autorität endgültig festgestellt, man hätte fast ein Recht die Richtigkeit derselben in Frage zu stellen. Herr Charles A. Conant, Schatzmeister der "Morton Trust Company," giebt in der "International Quarterly" ein gar lebhaftes Bild von dem schnellen Wuchs der Entwickelung unserer Nation:

"Die vielen Leute" sagt er, "die die schnelle Entwickelung der Vereinigten Staaten nicht genau befolgt haben, und die Ziffer der ungeheuren Interessen die unter der Kontrolle des Gemeinwesens stehen, endlich erblicken, dürften fast davor zurückschrecken. Es ist dies jedoch nur eine typische Phase mit dem Wuchse dieses Landes. Wenn Geldeinlagen in den nationalen Banken in New York allein von 310.000.000 Dollar, in 1890, auf 970.000.000 Dollar, in 1905, gestiegen sind, und wenn Geldeinlagen, ferner, in den Gesammtnational-Banken des Landes von 1.950.000.000 Dollar, in 1890, auf 5.000.000.000 Dollar, in 1905, anschwellten, so bieten diese Thatsachen nur theilweise den ganzen grossen Fortschritt dieses Landes.

"Die Anzahl der verschiedenen Nationalbanken ist während dieser Periode von 3.484 auf 5.331 gewachsen. Geldeinlagen in den Sparkassen wuchsen von 1.550.032.956 Dollar auf 2.918.775.329 Dollar und die Zahl der Einzahlenden Deponenten von 4.258.893 auf 7.305.443—eine Zunahme also von 70 Proz. Die Fabrikations-Erzeugnisse vergrösserten sich von 9.372.437.283 Dollar, in 1890, auf 13.039.279.566 Dollar, in 1905. Die Meilenzahl thätiger Eisenbahnen wurde von 166.703 auf 207.604 vergrössert. Die Anzahl beförderter Passagiere vergrösserte sich von 520.439.028 auf 696.908.994, oder ungefär 30 Proz. Die Zahl der beförderten Tons in Fracht dehnte sich pro Meile von 79.192.985.125 auf 171.290.310.695 aus, oder über 100 Proz.

Die "Marseilles" Fabrikations-Gesellschaft ist seit einer Reihe von Jahren bereits als fortschrittliches Fabrikationshaus landwirthschaftlicher Maschinen und Geräthe bestens bekannt. Vor mehreren Jahren machte die Firma ihr Erscheinen auf dem Exportgebiete, und ihre Waare erwies sich überall populär woimmer es auch eingeführt wurde. Ihre Fabrikationsartikel dürfen der Vortrefflichkeit und Leichtigkeit wegen fast unübertrefflich genannt werden und ist die Firma, in Folge dessen, auch stets bereit ihre auswärtigen Kunden mit äusserster Sorgfalt und Genauigkeit zu bedienen. Briefe in jeder Sprache sind willkommen. Man adressire nur: Marseilles Mfg. Co., Marseilles, Ill., U. S. A.

Das Haus Dapson & Wolf, Oneida, N. Y., U. S. A., liefert elegante Kaleschen und macht Fahrzeuge zur Spezialität. Der von diesem Hause fabrizirte Hauptspezialartikel besteht jedoch aus ihren leichtfahrenden "Zweirädlern," ein Fahrzeug das sich überall wo es bis jetzt auch eingeführt worden ist als beliebtes Fahrzeug erwies. Im jedem Einzelpunkte seiner Konstruktion ist es ein Muster pa. amerikanischer Arbeitsqualität das sich den besten Erzeugnissen ebenbürtig zur Seite stellt. Das Fahrzeug wird unter striktester Garantie der Firma verkauft. Wir können nur allen unseren geschätzten Lesern rathen, die ein Waarenassortiment dieser Branche zu führen beabsichtigen, sich mit der Firma direkt in Verbindung setzen zu wollen und sich Einzelheiten und Verkaufsbedingungen senden zu lassen. Die Firma ist mit den Anforderungen des auswärtigen Handels nicht allein bestens betraut, sondern ist auch ihren Geschäftsfreunden gegenüber in ihrer Handelsmethode koulant und zuvorkommend. Man adressire nur: Dapson & Wolf, Oneida, N. Y., U. S. A.

Die Redaktion dieses Blattes lenkt die Aufmerksamkeit geschätzter Leser auf die Annonce der "Morgan Potter" Gesellschaft, die an anderer Stelle erscheint. Es ist dies eine grosse Fabrikations-Firma welche die wohlbekannten Potterschen elastischen Feder-Blocks herstellt. Es sind jetzt mehr als 25 tausend Satz solcher Blocks im Gebrauch in den Vereinigten Staaten allein, und es wird allgemein zugegeben, dass dieselben sich allen ähnlichen Fabrikationen in jeder Hinsicht konkurrenzfähig zur Seite stellen. Sie sind billiger als jeder andere Ersatz, denn ihr Preis ist gering, ganz abgesehen von der Thatsache, dass sie äusserst dauerhaft und in jeder Hinsicht zufriedenstellend sind. Diese Blocks eignen sich aber auch nicht allein für Stahlreifen, sondern auch für Kautschukreifen. Ein sie besonders auszeichnender Vortheil ist, dass sie Kautschukreifen keineswegs verderben, d. h. sie in irgend welcher Weise beschädigen. Die Gesellschaft erbittet Korrespondenz auswärtinger Käufer und ersucht event. Briefschaften wie folgt zu adressiren: The Morgan Potter Co., Fishkill-on-Hudson, N. Y., U. S. A.

Inventions Due to Boys

Captain Cody, the inventor of the aeroplane kite, who recently gave an exhibition at the Crystal Palace of his new man-lifting air machines, was considerably astonished when, on the morning of the trial, a couple of models of his invention came fluttering gayly over the grounds from outside.

Subsequent investigation, says *Pearson's Weekly*, proved that the tiny duplicates had been built to scale by a couple of precocious youths, who had made mental notes of the principles upon which Mr. Cody's originals were constructed while on a visit to the Palace some days previously.

The boys had spent the whole of their pocket money in materials, had occupied their spare time in putting the kites together, and had utilized the spacious coal yard attached to the Penge Railway station for the conduct of their preliminary experiments.

The customary method of transporting freight in vast regions of the world where the locomotive is still a dream and the hope of millions

Sir John Brown, who made the first rolled armor plates for modern battleships, was but a lad of sixteen when the sight of a carriage worked by a spiral spring at a village fair suggested to him the conical spring buffer for railway trucks, out of which, after a long struggle, he ultimately made a fortune.

Eli Whitney, the inventor of the cotton gin, got the germ of his great idea from seeing, through the interstices of a hut, an old negro work a hand saw among the freshly picked cotton stored within.

The teeth from the saw tore the lint from the seed easily and quickly, and young Whitney (he was barely thirteen at the time) realized at once that a machine working a number of similar saws simultaneously would revolutionize the cotton industry.

He said nothing to anybody, but set to work building models and experimenting. His difficulties were enormous, for he not only had to make his own wheels, cogs, etc., but he had also first to forge his own tools, and even to manufacture the paint wherewith to color his many plans and drawings.

But he succeeded in the end, and though the outbreak of war, and other hindrances prevented the invention from being actually placed upon the market until many years afterward, the first complete cotton gin ever constructed was built from those very models and plans, and with scarcely a single alteration.

At Attercliffe, near Sheffield, in 1760, there lived a watchmaker named Huntsman, whose temper had often been tried by the defective quality of the watch springs then in use.

He sometimes wondered if it were not possible to make those articles of like nature, and at last came to the conclusion that if he could only melt a piece of steel and cast it into an ingot its composition would be the same throughout.

He experimented, and at last succeeded. The supply created the demand. And ere long Huntsman was turning out cast steel ingots by the hundreds of tons, and reaping a fortune.

The workmen in the mills were paid very high wages, and were sworn to secrecy. Nor did they betray their trust at least not wittingly.

But one bitter night they gave shelter to a wan, half frozen lad, dressed in tattered corduroys. He asked no questions. Indeed, he seemed dozing most of the time in the warm glow of the furnaces.

Nevertheless, when he went he took the secret of steel casting with him, and within half a dozen weeks there were as many mill owners in Sheffield working the new process.

Samuel Crompton, a boy of sixteen, copied the best features of the spinning machine invented by Hargreaves and Arkwright, added to them some of his own and, after thirty months of anxious and secret experimenting, produced the first spinning mule so-called because it was a kind of hybrid between Hargreaves' jenny and Arkwright's water frame.

The raw apprentice lad was, however, no match in cunning for the cotton lords, who soon found out the secret of his new machine and shamelessly robbed him of the fruits of his ingenuity.

Many years after, it is true, they used their influence to secure for him a Parliament grant of £5,000, but he was then a broken hearted and disappointed man, to whom the money came too late to be of any real service.

The late Sir Isaac Holden's inventions in connection with the wool combing industry have almost obscured from the public's remembrance the fact that he was also the originator of the lucifer match.

This happened while filling the position of lecturer on chemistry at the Castle Street Academy, Reading. He used to rise at 4 in the morning in order to pursue his studies and found the old fashioned flint and steel extremely inconvenient. So, one day, he made a paste of phosphorus and other substances stuck it on the end of a sliver of wood and found it would ignite on being rubbed against any rough substance.

Holden himself did not realize the importance of his discovery. No so, however, a pupil of his to whom he showed it. This youngster, who chanced to be the son of a London manufacturing chemist, at once wrote to his father about it; and shortly after lucifer matches were issued to the world.

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voll strotzender Eichen, Elmen, Nussbäumen und anderen werthvollen harten Holzsorten.

Die Gesellschaft hat eine riesige Bandsäge-Fabrik die Tag und Nacht arbeitet und jeden Arbeitstag über 50.000 Fuss Bretter schneidet. Sie haben eine vollständige Dorfansieldelei um ihre Fabrik gebaut, reizende kleine Wohnhäuser für den alleinigen Gebrauch ihrer Angestellten enthaltend.

Die Gesellschaft fabrizirt in ihren Fabriken die meisten Theile und Stücke ihrer Holzkarren; die Eisen- und Stahltheile, hingegen, werden aus ihrer Lansingfabrik geliefert, die sich ausschliesslich mit der Herstellung von Stahlkarren, Streichbrettern, Stahlrahmen und anderen Stahlartikeln für den Bauhandel befasst.

Die Erzeugnisse obiger Gesellschaft werden jetzt von der Regierung der Vereinigten Staaten beim Bau des Panama-Kanals verwant. Auch liefert sie das Material für Eisenbahnbauten in Argentinien, für die Fabrikationsminen in Süd-Afrika und Mexiko, wie auch für die diversen Gartenanlagen der englischen und anderer Höfe und vieler auswärtiger Länder. Es beweist dies zur Genüge wie vielseitig und vortrefflich ihre Erzeugnisse sind. Die Firma stellt eine enorme Anzahl verschiedener Sorten und Typen von Holz- und Stahlschubkarren diverser Grösse her. Auch liefert sie Laden- und Speicher-Trucks besonderer Muster für besondere Zwecke, Baukarren und Werkzeuge, Streichbretter, u. s. w.

Ihr Katalog No. 8, 160 Seiten stark, der soeben erschienen ist, giebt das komplette Assortiment ihrer Erzeugnisse an. Derselbe wird auf Wunsch Händlern franko versandt. Man schreibe nur: The Lansing Wheelbarrow Co., B-21 Produce Exchange, New York City.

Der Fortschritt Amerikas

Kein Thema das nationale Wichtigkeit erheischt, hat während der letzten paar Jahre grössere Aufmerksamkeit hervorgerufen als die Koncentration der nationalen Macht in Amerika. Ein Vergleich dieser Thatsache nur lässt alle anderen Nationen schon schwach und gering erscheinen und wären die Ziffer nicht durch unantastbare Autorität endgültig festgestellt, man hätte fast ein Recht die Richtigkeit derselben in Frage zu stellen. Herr Charles A. Conant, Schatzmeister der "Morton Trust Company," giebt in der "International Quarterly" ein gar lebhaftes Bild von dem schnellen Wuchs der Entwickelung unserer Nation:

"Die vielen Leute" sagt er, "die die schnelle Entwickelung der Vereinigten Staaten nicht genau befolgt haben, und die Ziffer der ungeheuren Interessen die unter der Kontrolle des Gemeinwesens stehen, endlich erblicken, dürften fast davor zurückschrecken. Es ist dies jedoch nur eine typische Phase mit dem Wuchse dieses Landes. Wenn Geldeinlagen in den nationalen Banken in New York allein von 310.000.000 Dollar, in 1890, auf 970.000.000 Dollar, in 1905, gestiegen sind, und wenn Geldeinlagen, ferner, in den Gesammtnational-Banken des Landes von 1.950.000.000 Dollar, in 1890, auf 5.000.000.000 Dollar, in 1905, anschwellten, so bieten diese Thatsachen nur theilweise den ganzen grossen Fortschritt dieses Landes.

"Die Anzahl der verschiedenen Nationalbanken ist während dieser Periode von 3.484 auf 5.331 gewachsen. Geldeinlagen in den Sparkassen wuchsen von 1.550.032.956 Dollar auf 2.918.775.329 Dollar und die Zahl der Einzahlenden Deponenten von 4.258.893 auf 7.305.443—eine Zunahme also von 70 Proz. Die Fabrikations-Erzeugnisse vergrösserten sich von 9.372.437.283 Dollar, in 1890, auf 13.039.279.566 Dollar, in 1905. Die Meilenzahl thätiger Eisenbahnen wurde von 166.703 auf 207.604 vergrössert. Die Anzahl beförderter Passagiere vergrösserte sich von 520.439.028 auf 696.908.994, oder ungefär 30 Proz. Die Zahl der beförderten Tons in Fracht dehnte sich pro Meile von 79.192.985.125 auf 171.290.310.695 aus, oder über 100 Proz.

Die "Marseilles" Fabrikations-Gesellschaft ist seit einer Reihe von Jahren bereits als fortschrittliches Fabrikationshaus landwirthschaftlicher Maschinen und Geräthe bestens bekannt. Vor mehreren Jahren machte die Firma ihr Erscheinen auf dem Exportgebiete, und ihre Waare erwies sich überall populär woimmer es auch eingeführt wurde. Ihre Fabrikationsartikel dürfen der Vortrefflichkeit und Leichtigkeit wegen fast unübertrefflich genannt werden und ist die Firma, in Folge dessen, auch stets bereit ihre auswärtigen Kunden mit äusserster Sorgfalt und Genauigkeit zu bedienen. Briefe in jeder Sprache sind willkommen. Man adressire nur: Marseilles Mfg. Co., Marseilles, Ill., U. S. A.

Das Haus Dapson & Wolf, Oneida, N. Y., U. S. A., liefert elegante Kaleschen und macht Fahrzeuge zur Spezialität. Der von diesem Hause fabrizirte Hauptspezialartikel besteht jedoch aus ihren leichtfahrenden "Zweirädlern," ein Fahrzeug das sich überall wo es bis jetzt auch eingeführt worden ist als beliebtes Fahrzeug erwies. Im jedem Einzelpunkte seiner Konstruktion ist es ein Muster pa. amerikanischer Arbeitsqualität das sich den besten Erzeugnissen ebenbürtig zur Seite stellt. Das Fahrzeug wird unter striktester Garantie der Firma verkauft. Wir können nur allen unseren geschätzten Lesern rathen, die ein Waarenassortiment dieser Branche zu führen beabsichtigen, sich mit der Firma direkt in Verbindung setzen zu wollen und sich Einzelheiten und Verkaufsbedingungen senden zu lassen. Die Firma ist mit den Anforderungen des auswärtigen Handels nicht allein bestens betraut, sondern ist auch ihren Geschäftsfreunden gegenüber in ihrer Handelsmethode koulant und zuvorkommend. Man adressire nur: Dapson & Wolf, Oneida, N. Y., U. S. A.

Die Redaktion dieses Blattes lenkt die Aufmerksamkeit geschätzter Leser auf die Annonce der "Morgan Potter" Gesellschaft, die an anderer Stelle erscheint. Es ist dies eine grosse Fabrikations-Firma welche die wohlbekannten Potterschen elastischen Feder-Blocks herstellt. Es sind jetzt mehr als 25 tausend Satz solcher Blocks im Gebrauch in den Vereinigten Staaten allein, und es wird allgemein zugegeben, dass dieselben sich allen ähnlichen Fabrikationen in jeder Hinsicht konkurrenzfähig zur Seite stellen. Sie sind billiger als jeder andere Ersatz, denn ihr Preis ist gering, ganz abgesehen von der Thatsache, dass sie äusserst dauerhaft und in jeder Hinsicht zufriedenstellend sind. Diese Blocks eignen sich aber auch nicht allein für Stahlreifen, sondern auch für Kautschukreifen. Ein sie besonders auszeichnender Vortheil ist, dass sie Kautschukreifen keineswegs verderben, d. h. sie in irgend welcher Weise beschädigen. Die Gesellschaft erbittet Korrespondenz auswärtinger Käufer und ersucht event. Briefschaften wie folgt zu adressiren: The Morgan Potter Co., Fishkill-on-Hudson, N. Y., U. S. A.

INTENTIONAL SECOND EXPOSURE

Inventions Due to Boys

Captain Cody, the inventor of the aeroplane kite, who recently gave an exhibition at the Crystal Palace of his new man-lifting air machines, was considerably astonished when, on the morning of the trial, a couple of models of his invention came fluttering gayly over the grounds from outside.

Subsequent investigation, says *Pearson's Weekly*, proved that the tiny duplicates had been built to scale by a couple of precocious youths, who had made mental notes of the principles upon which Mr. Cody's originals were constructed while on a visit to the Palace some days previously.

The boys had spent the whole of their pocket money in materials, had occupied their spare time in putting the kites together, and had utilized the spacious coal yard attached to the Penge Railway station for the conduct of their preliminary experiments.

The customary method of transporting freight in vast regions of the world where the locomotive is still a dream and the hope of mi'lions

Sir John Brown, who made the first rolled armor plates for modern battleships, was but a lad of sixteen when the sight of a carriage worked by a spiral spring at a village fair suggested to him the conical spring buffer for railway trucks, out of which, after a long struggle, he ultimately made a fortune.

Eli Whitney, the inventor of the cotton gin, got the germ of his great idea from seeing, through the interstices of a hut, an old negro work a hand-saw among the freshly picked cotton stored within.

The teeth from the saw tore the lint from the seed easily and quickly, and young Whitney (he was barely thirteen at the time) realized at once that a machine working a number of similar saws simultaneously would revolutionize the cotton industry.

He said nothing to anybody, but set to work building models and experimenting. His difficulties were enormous, for he not only had to make his own wheels, cogs, etc., but he had also first to forge his own tools, and even to manufacture the paint wherewith to color his many plans and drawings.

But he succeeded in the end, and though the outbreak of war, and other hindrances prevented the invention from being actually placed upon the market until many years afterward, the first complete cotton gin ever constructed was built from those very models and plans, and with scarcely a single alteration.

At Attercliffe, near Sheffield, in 1760, there lived a watchmaker named Huntsman, whose temper had often been tried by the defective quality of the watch springs then in use.

He sometimes wondered if it were not possible to make those articles of like nature, and at last came to the conclusion that if he could only melt a piece of steel and cast it into an ingot its composition would be the same throughout.

He experimented, and at last succeeded. The supply created the demand. And ere long Huntsman was turning out cast steel ingots by the hundreds of tons, and reaping a fortune.

The workmen in the mills were paid very high wages, and were sworn to secrecy. Nor did they betray their trust—at least not wittingly.

But one bitter night they gave shelter to a wan, half-frozen lad, dressed in tattered corduroys. He asked no questions. Indeed, he seemed dozing most of the time in the warm glow of the furnaces.

Nevertheless, when he went he took the secret of steel casting with him, and within half a dozen weeks there were as many mill owners in Sheffield working the new process.

Samuel Crompton, a boy of sixteen, copied the best features of the spinning machine invented by Hargreaves and Arkwright, added to them some of his own and, after thirty months of anxious and secret experimenting, produced the first spinning mule—so-called because it was a kind of hybrid between Hargreaves' jenny and Arkwright's water-frame.

The raw apprentice lad was, however, no match in cunning for the cotton lords, who soon found out the secret of his new machine and shamelessly robbed him of the fruits of his ingenuity.

Many years after, it is true, they used their influence to secure for him a Parliament grant of £5,000, but he was then a broken hearted and disappointed man, to whom the money came too late to be of any real service.

The late Sir Isaac Holden's inventions in connection with the wool combing industry have almost obscured from the public's remembrance the fact that he was also the originator of the lucifer match.

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A Biography of General Diaz

From an article in *Modern Mexico*

A new biography of President Diaz has just been issued anonymously in this capital. It is not a complete biography, being only brought down to the year, 1865, when General Diaz made his sensational escape from the prison in which the imperialists had shut him up at the city of Puebla.

The author has evidently had access to good sources of information, and though the biography does not embrace the General's political career, nor even the most brilliant portion of his military career, it will undoubtedly have numerous and interested readers.

One of the sources of information of which the author has made copious use is altogether unique. General Diaz on different occasions conversed extensively with the late Matias Romero, Minister and Ambassador of Mexico to the United States, and related to him with ample details some of the chief episodes in his noteworthy career. Don Matias reduced to writing the information thus imparted to him, giving the narrative in the first person—that is, in the autobiographical or personal-memoir form, and, as nearly as he could remember, in the President's own words. The fact that many extracts from these memoirs figure in the new biography alone serves to give it special interest.

FRESIDENT DIAZ

Take, for example, the story of General Diaz's escape from his prison at Puebla. He, with other prisoners of war, was held in strict confinement, under the vigilance of French and Austrian officers, in the former house of the Jesuits at Puebla. Some of the incidents of his escape have often been related, but no account can be as full and authentic as that which General Diaz himself gave to Don Matias Romero, and which is as follows:

"After taps for silence had been sounded for the night, I went to a room which was roofless and which on that account was used as a yard. This act did not attract the attention of the sentries, as the conveniences were there situated. I had with me three ropes, wrapped up in canvas, and I threw them onto the roof. I also had another rope, and I succeeded in throwing it around a projecting stone spout which seemed to be sufficiently firm. The task proved a very difficult one, as I could not clearly distinguish the spout, there being no light other than that afforded by the stars on a very dark night. When I had satisfied myself that the support was sufficient, I climbed up by the rope to the roof. I then removed the rope which had served me to reach that point, and I picked up the three which I had thrown up onto the roof beforehand.

"My progress along the roof to the corner of San Roque street, where I had made up my mind to descend, was attended with much danger, for on the roof of the church which commanded the conventual buildings a detachment and sentries were stationed to keep watch. The roof along which I had to crawl is formed of little domes corresponding to the various cells. Gliding on all-fours among these domes, I made towards the point where I was to let myself down. I often had to stop to feel my way, for the roof was strewn with many fragments of glass which sounded when touched. Moreover, there were frequent flashes of lightning, which exposed me to being discovered. I finally reached the wall of the church, and as there the sentry could not have seen me except by bending over considerably, I stood up and continued to advance on foot.

"In order to arrive at the corner of the street of San Roque it was necessary to pass through a portion of the edifice which was occupied by the priest in charge of the church, and I was aware that shortly before he had denounced to the court-martial some political prisoners who had bored a hole through their place of confinement into his dwelling, and as a consequence they had been shot the next day.

"I let myself down into an upper yard of the priest's house at the moment when a young man who also lived there had come in from the street; he had probably been to the theatre, for he was in gay humor and was humming an air from an operetta. I waited for him to enter his room, but a moment afterwards he came out with a lighted candle and approached the spot where I stood. The conveniences were situated in the yard. He did not see me as he passed, and I remained quiet until he had re-entered his room. When I considered that sufficient time had elapsed for him to get into bed, and perhaps to fall asleep, I climbed to the roof of the convent on the opposite side to that by which I had descended and pushed forward to the corner of the street of San Roque, and I arrived there at last.

"There is at that corner, in a niche, a statue of St. Vincent Ferrer which I purposed using to fix the rope by which I was to descend. The saint wobbled when touched, but probably there was inside the statue an iron spike to hold it. In any case, in order to be more sure, I adjusted the rope around the pedestal of the statue, which seemed to be quite firm.

"It occurred to me that if I descended directly into the street I might be seen by some passerby, and I therefore resolved to alight in a vacant lot which adjoined and which was only fenced in. I did not know that there was a drove of hogs in this yard.

"As, when I began the descent, I turned somewhat with the rope, my back struck against the wall, and the impact caused a poniard which I carried at my waist to fall from its sheath among the hogs, probably wounding one of them, for they set up a grunting which grew louder as they saw me descending among them. I had to wait for some time for them to quiet down. I then climbed to the top of the partition separating the lot from the street, but I had at once to bob down again for just at that moment a gendarme was passing on his round, seeing if the doors were well fastened. When he had retired I sprang into the street."

General Diaz had picked up in the corral the poniard which had dropped from his belt in the descent, and he walked along the street with it in his hand, as he thought that he might have to kill the gendarme whom he had seen making his round, or some other who might challenge him. But in his walk to the house which he aimed to reach he saw only one gendarme, who was seated on the curbstone asleep. General Diaz touched him on the shoulder with a "No te duermas," and the man replied with a somnolent "No, jefe!" immediately dozing off again.

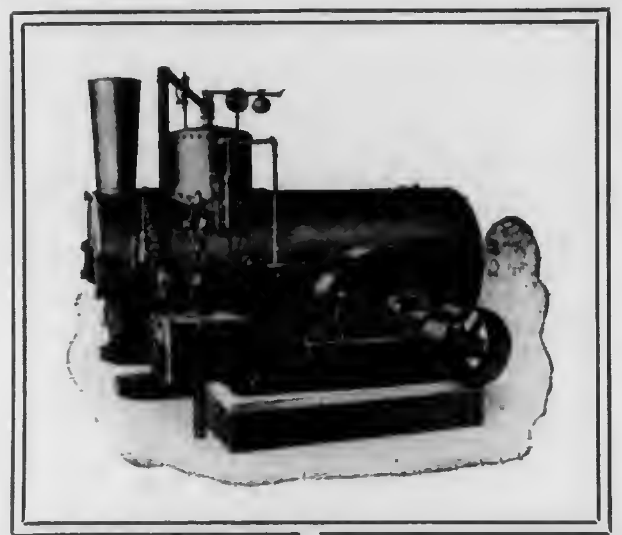
The rest is well known. General Diaz succeeded in reaching the State of Oaxaca, where his prestige, enhanced by his daring escape, soon attracted a following and he initiated that brilliant series of military operations which culminated in the storming of Puebla on April 2, 1867, and the capture of the City of Mexico on June 21st of the same year.—*Modern Mexico.*

SHORTENING THE WORLD'S ROADS

Tunnels call for more tunnels and canals for more canals, the common object being to facilitate traffic round the world. A singular result of the promise to dig the Panama Canal is directly connected with the recent completion of the Simplon Tunnel through the Alps. This is the revival of a project in France to tap the northern end of the Simplon Tunnel by means of a chain of three tunnels through the Jura Mountains, having an aggregate length of about 20 miles. This is known as the Faucille Tunnel project, and its object is to prevent the diversion of traffic from the French Atlantic ports to Antwerp and Hamburg. The Panama Canal is expected to increase enormously the traffic across Europe from the East, and this traffic demands more bores through the Alps, and a shortening of roads everywhere.

THE DANUBE'S WORKING POWER

Gradually all the great rivers are being harnessed for the great advance that the mechanical powers under the control of man are destined to make during the twentieth century. In the nature of the case, those rivers whose upper courses are marked by many waterfalls possess the greatest available power. Recent calculations by Bavarian engineers show that the Danube is capable of developing, together with its Alpine tributaries, a little less than 2,000,000 horse-power. This applies only to that part of the river's course lying in Bavaria. Only 700,000 horse-power could be effectively utilized, and only 75,000 has as yet been developed. The principal uses found for water-power in the Alps are for mountain railroads, and for electrochemical and electrometallurgical industries.



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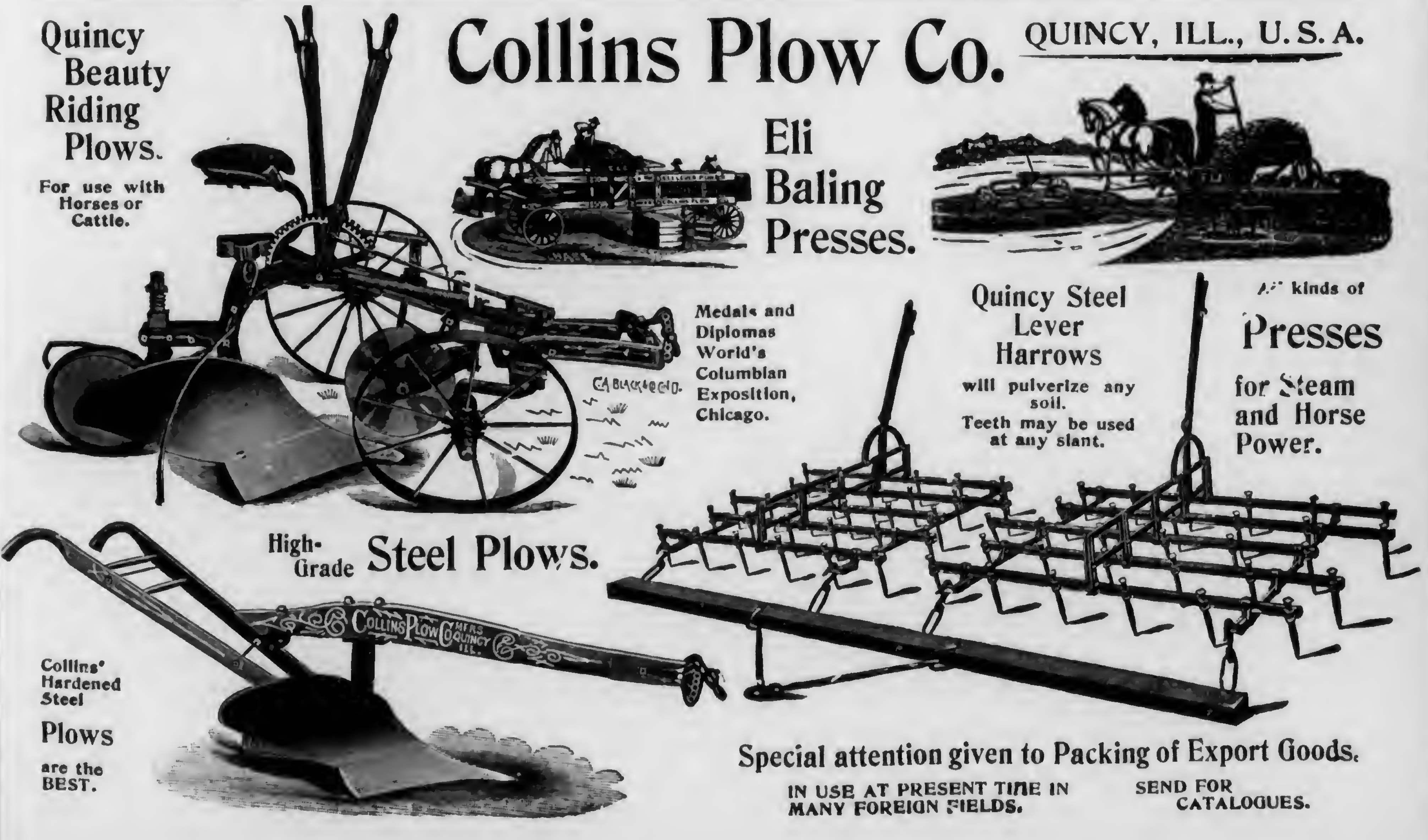

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The Pan=American Conference

An article published in the "*Jornal do Commercio*" of Rio de Janeiro, for December 11, 1905, sets forth the importance attached by the Brazilian press to the approaching Third International Conference of American States, to be held in that city during July, 1906. The main features of the article in reference are herewith translated and reproduced:

"The last Pan-American Conference took place in the City of Mexico in 1901, and during the intervening five years, international developments of such diverse and important character have transpired that the political ideas of the Western Continent have undergone a sudden readjustment, due to a lively appreciation of the universality of its destiny, which inspires and instructs the minds of the American peoples.

"It is this important variation of principles, as evidenced by the amplifications of the Monroe Doctrine made by President Roosevelt, that lends peculiar interest to the approaching Conference at Rio de Janeiro. In times past there have been Congresses whose results have been either illusory or transitory. No vague and fugitive outcome is expected, however, from the approaching Pan-American Conference. Not only are the nations of America under the necessity of assuring their international existence; they must consolidate a collective ideal of a continent which will seek to share with Europe those principles which are the foundation of the political organization of its peoples. It is hoped that the Conference will clearly express the heartfelt aspirations of the American nations.

"The assembling of an American conference holds no snare for Europe, nor is its sentiment of unity hostile to European progress and ideals. What America desires is equality before international law, and that the sovereignty of its people should be as that of European nations. Its territory should be inaccessible to European cupidity or conquest. America is desirous of subjugation only by that culture which is the glory of Europe, the dignity of the human mind. It is a foregone conclusion that the Conference will proclaim no American rights opposed to European rights. One law for one civilization will prevail for all peoples, without regard to either climate or race.

"So far as America is concerned, the great service rendered by the Monroe Doctrine has been the safeguarding of its liberty in the development of the power of each American nation. Fearless of exterior and unjustifiable violence, though provoked by barbarism and corruption, each of the American peoples may attain a maximum of culture, protected by that doctrine whose destiny, in the history of political ideals, has been as singular as it is surprising.

"Seldom has it been possible that a simple doctrine should change the course of currents seemingly more in accord with nature; so that, in America at least, the principle of respect for the independence and sovereignty of all nations has taken the place of expansion by force, the annihilation of the weak, and the seizure of uninhabited regions, which has prevailed since the great discoveries of the sixteenth century. South America has, however, nothing to fear, for the Monroe Doctrine is not an abstraction, being based upon the marvelous ascendency of the United States. Latin-America has nothing to fear from the America of the Anglo-Saxons. The United States, being of English origin and principles, is consequently adapted for civilizing other nations, for the appreciation of the individual is so deeply rooted in the race that American or English imperialism, though traces of it may be manifested, has nothing in common with that of Latin or German origin, which devastates and destroys in the effort to weld into one type the most irreconcilable elements from all regions of the globe. There is, therefore, absolutely nothing in the policy of the United States to excite the national sensibilities of other American countries, but, on the other hand, these countries have found a continual support for their individual causes and aspirations in the predominance of that leading nation of the continent.

"If at any time discontent was aroused by the American Republic, it was when President Roosevelt announced that the Monroe Doctrine could not serve as a shield for bankrupt policies and international piracies.

"Brazil, which stands solidly in favor of this interpretation of the Monroe Doctrine, takes pride in the spontaneous and positive sympathy of the American Nation and its great President. There is no more desirable friendship in the world. England acclaims it as indestructible, and, that it might not be broken, submitted to the Cleveland *ultimatum*, in which the United States claimed the right of arbitration in the boundary question between British Guiana and Venezuela. The Emperor of Germany, whose sagacity and power are recognized throughout the world, sent his brother, Prince Henry of Prussia, on a friendly visit to the Great Republic, and had Miss Roosevelt serve as sponsor for a German cruiser constructed under the American flag. France, Russia and Japan, whatever their system of alliances may be, strive for the sympathy of the United States as a factor of the highest importance. The peace of Portsmouth was the culminating point of this marvelous prestige.

"There is, in the diplomatic history of Brazil no event, such as often transpires in international affairs, which is of sufficient weight to weaken our friendship with the United States. Under the Empire three unpleasant incidents—of Condy, Raguet, and of White and Webb—were settled to the honor of Brazil, and without foreign intervention; the American Government disavowing and punishing its agents. The Emperor, who retained no rancor as a result of these incidents, visited the United States in 1876, and returned home full of wonder and enthusiasm. As a Republic our resemblance to that of North America has been a decisive factor.

"As an evidence of the service done us by the sympathy of the United States it suffices to mention that the arbitration of the Oyapoc question was due in a great degree to the conviction which prevailed in Paris that Brazil would not be isolated in case an attempt of military occupation was made. At that time, but a few months had transpired subsequent to the Cleveland *ultimatum*.

"The reciprocal courtesy shown by the American Government in raising the rank of its diplomatic representative at Rio de Janeiro and the initiative taken in selecting that capital for the reassembling of the Pan-American Congress are significant indications of a valuable and satisfactory friendship.

"And, as though political reasons were not already sufficient to endow the conference at Rio de Janeiro with a real importance, the presence in our country of the Secretary of State of the United States, the honorable Mr. Root, is a further expression thereof, and may be considered as in reality an event of prime importance. He comes not as a delegate; he is a member of the American Government itself, who, for the first time in the political history of his country, pays a visit to another nation. This honorable distinction came to Brazil as a natural expression on the part of the North American Republic of confidence in our loyal and deep appreciation.

"Our own Ambassador in Washington, Senhor Joaquin Nabuco, will also come to Brazil with the American Secretary.

"After an absence of seven years spent in honoring his native land, that eminent diplomat could not return in a more fitting manner to Brazil, which is proud to claim him as a son.

"Secretary Root comes from that wonderland which is his native country, and his lofty soul will delight in noting the activity, energy, and aspiration of the Brazilian people. Under the transforming influence of science and industry our nation must secure a foremost place among the nations of America. It is our duty to co-operate with immigrant races for the advancement of this ideal

"The brilliant international policy upon which Brazil has entered will be a factor in its internal progress. The respect and sympathy shown us by other nations will increase our sense of responsibility and ennoble our conception of our destiny. This affiliation of the American peoples is the greatest service that Senhor Rio Branco could have rendered to Brazilian civilization. It is the crown of his political labors. The victories gained by him in defense of national territory: the expansion of Brazilian interests through his intelligence, tact, and pacific tendencies have, indeed, been services of more than ordinary character; but his renown as a statesman lies in having given to Brazil an international standing such as it has not had since its inception as a nation."—*Monthly Bulletin of International Bureau of the American Republics.*

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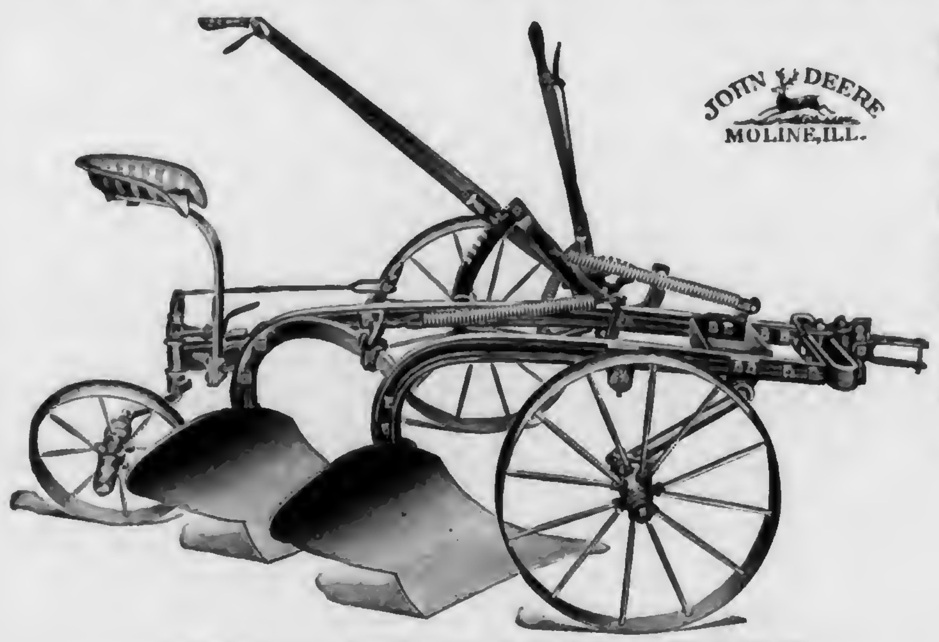

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A Wonderful American Girl

No doubt every reader of THE EXPORT IMPLEMENT AGE has heard of Helen Keller, the wonderful blind and deaf girl who has, by the aid of her teacher, Miss Sullivan, attained to such a marvelous understanding of the visible, audible and mental world, and whose mastery of the art of verbal expression is a source of amazement to all. Miss Keller says, "before your journey's end you may have to go a dark way yourself," and the truth of this utterance makes more impressive to each of us the message which this wonderful girl recently sent to a meeting in New York City, which was held for the purpose of raising money for schools and shops for the blind. Mark Twain, who presided, read a letter from Helen Keller, which he said was a classic and deserved a place among the literary productions. Miss Keller had expected to be present, but was not able to do so on account of sickness, and the letter was dictated by her on a sick bed.

The meeting, which was under the auspices of the New York State Association for improving the condition of the blind, secured pledges for $15,000.

Miss Keller's letter is as follows:

"WRENTHAM, MASS., March 27.

"My dear Mr. Clemens: It is a great disappointment to me not to be with you and other friends who have joined their strength to uplift the blind. The meeting in New York will be the greatest occasion in the movement which so long has engaged my heart. I regret keenly not to be present and feel an inspiration living in contact with such an assembly of wit, wisdom and philanthropy.

"I should be happy if I could have spelled into my hand the words as they fall from your lips, and receive, even as it was uttered, the eloquence of our newest ambassador to the blind. We have not had such advocates before.

"My disappointment is softened by the thought that never at any meeting was the right word so sure to be spoken. But, superfluous as all other appeals must seem after you and Mr. Choate have spoken, nevertheless, as I am a woman, I cannot be silent, and ask you to read the letter, knowing it will be lifted to eloquence by your kindly voice.

"To know what a blind man needs you who can see must imagine what it will be not to see, and you can imagine it more vividly if you remember that before your journey's end you may have to go a dark way yourself. Try to realize what blindness means to those whose joyous activity is stricken to inaction.

"It is to live long, long days—and life is made up of days. It is to live immured, baffled, impotent, all of God's world shut out. It is to sit helpless, defrauded, while your spirit strains and tugs at its fetters and your shoulders ache for the burden they are denied the rightful burden of labor.

"In an instant an accident blinds a man. The day is blotted out. Night envelops all the visible world. The feet which once bore him to his task with a firm, confident stride, stumble and halt in fear of a forward step. He is forced to a new habit of idleness, which, like the canker, consumes the mind and destroys its beautiful faculties.

"Memory confronts him with its lighted past. Amid the tangible ruins of his life as it promised to be he gropes his pitiful way. You have met him on your busy thoroughfares with faltering feet and outstretched hands, patiently 'dredging' the universal dark, holding out for sale his petty wares or his cap for your pennies; and this was a man with ambitions and capabilities.

"It is because we know these ambitions and capabilities can be fulfilled that we are working to improve the condition of the adult blind. You cannot bring back sight to the vacant eyes; but you can give a helping hand to the sightless along their dark pilgrimage. You can teach them new skill. For work they once did with the aid of their eyes you can substitute the work that they can do with their hands.

HELEN KELLAR
and her teacher Miss Sullivan

"They ask only opportunity, and opportunity is the torch of darkness. They crave no charity, no pension, but the satisfaction that comes from lucrative toil, and this satisfaction is the right of every human being.

"At your meeting New York will speak its word for the blind, and when New York speaks the world listens. The true message of New York is not commercial ticking and busy telegraphs, but the mightier utterances such gatherings as yours.

"Of late our periodicals have been filled with the depressing revelations of great social evils. Querulous critics have pointed to every flaw in our civic structure. We have listened long enough to pessimists.

"You once told me you were a pessimist, Mr. Clemens, but great men usually are mistaken about themselves. You are an optimist. If you are not you would not preside at the meeting. For it is an answer to pessimism. It proclaims the heart and wisdom of a great city devoted to the good of mankind, that in this, the busiest city in the world, no cry of distress goes up but receives a compassionate, generous answer. Rejoice that the cause of the blind has been heard in New York, for the day after it shall be heard around the world.

"HELEN KELLER."

CATALOGUES WANTED

Urbain J. Ledoux, United States consul at Prague, Bohemia (Austria), desires that all mercantile and manufacturing establishments forward to him at his consulate their latest catalogues, price-lists, and all other trade literature they may issue, from time to time, to enable prospective customers in Bohemia to post themselves on American products and prices. Mr. Ledoux, who is a wide-awake official and keenly alive to the interests of his country, particularly its foreign trade, has inaugurated at the consulate in Prague a bureau of information and reference regarding American products suitable for export, and their prices, for the benefit of the merchants and manufacturers of Bohemia, as well as for the trade in his own country.

The bureau not only supplies valuable information to the Bohemian exporters and importers, but also facilitates a systematic communication between the business interests of both countries. Consul Ledoux, in furtherance of his plans to promote commerce between the United States and Bohemia, has placed on file at the Prague consulate a large amount of American trade literature, statistics and general information, which has proved of invaluable service to the Bohemian merchants and manufacturers who are desirous of getting in close touch with the American markets. Consul Ledoux's new bureau has received the unqualified approval not only of the Bohemian business interests, but also of the Bohemian press, the latter lauding his undertaking as an enterprise filled with vast beneficial possibilities for the two countries. The data contained in the bureau is replete with valuable information that would otherwise be difficult to obtain, but which is now available at all times and at little or no cost.

THE WRIGHT AIRSHIP

When Mr. Arnold Fordyce, the aeronautic agent of the French Government, returned to Paris recently from New York, it was announced that he had made a contract with the Wright brothers, of Dayton, Ohio, for the exclusive ownership of their aeroplane by France. Mr. Fordyce gave it as his opinion that the aeroplane devised by the Wright brothers is the only real airship in the world.

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BOLIVIA

A descriptive pamphlet on Bolivia has recently been published by the International Bureau of American Republics. It contains full details as to the geography, natural resources, laws, etc., of the country, and should be carefully consulted by anyone desirous of information as to existing conditions and possibilities in this great interior State of South America. In the present report it is proposed merely to supplement the information contained in this previous publication, using more recent data, and examining more closely certain aspects of the international commercial dealings of the Republic.

In size Bolivia stands third among the nations of South America. Indeed, there are few countries in the world which surpass it, for it is one-quarter the size of the United States, is six times as large as Great Britain and Ireland, three and one-half times the size of Germany or France, and three times the size of Austria-Hungary. All of our New England and Middle States, and all the Southern States, except Texas, together, would just about fill its area of 729,000 square miles. This enormous section of country lies in the heart of the South American continent, extending from east to west, from longitude 57 degrees 30 minutes west to 73 degrees 47 minutes, while in latitude it ranges from 7 degrees 6 minutes south to nearly 2 degrees south of the tropic of capricorn. On the east it is separated from the sea by the vast stretches of Brazil and the River Platte countries. On the west the nearest practicable routes to the ocean are through Chile from Oruro to Antofagasta, 500 miles by rail, and through Peru, 400 miles from Guaqui to Mollendo.

Broadly speaking, this great area represents the high plateau region of South America, the section where the huge backbone of the continent, the Andes, spreads out to its greatest width, forming a tableland ranging in elevation from 12,000 to 14,000 feet above sea level, with many peaks rising above 20,000 feet. There is, however, a second section of the country to the east of the mountains, and including their eastward slopes, which here are very steep, the main portion of which is relatively low land, varying from a few hundred to a few thousand feet in altitude. These two parts of the country naturally present great contrasts economically as well as geographically. The first or plateau region produces chiefly minerals; some agriculture is carried on in parts, but it is difficult to get more than small returns, for the climate is cold and the rainfall scanty. The lowlands to the east of the mountains, on the contrary, are a region of tropical heat and abundant moisture, except in certain sections. Agriculture is possible in many places, but the chief products are those which are exploited from the tropical forests—rubber, cinchona, cacao, cocoa, and hardwoods. The natural outlet for the products of the plateau region is, at present, westward to the Pacific; of the eastern lowlands, eastward to the Atlantic.

The population of the country is sparse, being estimated in 1900 at about 1,800,000, or 2½ to the square mile, and the character of the mass of the people is such that they cannot be regarded as having any very high degree of economic efficiency. Less than 15 per cent. are whites; the remainder consists mostly of half-breeds and Indians, many of them scarcely, if at all, touched by civilization, and creating but a small demand for the products of the outside world, raising most of their own simple foodstuffs and weaving most of their own scanty clothing, knowing but little of modern customs and wants, and having but little contact with foreigners except in the mining centers. There is scarcely any city life, for there are few cities. The largest center, the capital, La Paz, contains only 54,000 inhabitants. There are only five other towns which pass the 10,000 mark and only eight which pass 4,000. The remainder of the population live either in scattered uncivilized tribes in the tropical forest region or in small mud-built agricultural or mining villages in the plateau region. There is little of the luxury or refinement of modern life, and many of the things which in Europe or the United States are regarded as necessities are unknown.

ELECTRICAL CURRENTS

Electrical currents constantly traverse the earth in a general but varying direction from northwest to southeast, at an angle of about seventy degrees with the geographical meridian. A Belgian astronomer, M. Guarini, contends that these currents are due to the action of the sun and the earth with its atmosphere as a gigantic dynamo, the sun being the magnetic inductor and the earth the revolving armature with the atmosphere and the superficial crust as two windings. The earth's rotation develops a contrary, or east or west, current in the atmosphere, which induces a contrary, or west to east, current in the crust. M. Guarini believes that a large amount of current could be passed through a motor of low resistance and made to yield a large amount of power for industrial use.

NEW AUSTRALIAN TARIFF

The new Austrian tariff increases the import duties on automobiles and parts, writes Consul-General Rublee, of Vienna. On machines weighing 880 pounds the rate is $13.84 per 100 pounds, with a gradual decrease for heavier autos, those weighing over 7,000 pounds being charged $5.54 per 100 pounds. Separate motors weighing 110 pounds are charged $13.84 per 100 pounds, with a graduated decrease to $5.54 per 100 for motors weighing 880 pounds. Rubber tires, etc., are dutiable at $13.84 per 100 pounds (an increase of over 100 per cent.) in the new tariff, which goes into effect on March 1st.

THE UPPER AIR

Balloon soundings have shown surprisingly low temperatures in the upper air. At St. Louis, in December, 1901, A. L. Rotch recorded 122 degrees below zero at 48,544 feet; while at Vienna, R. Nimfuhr, on March 2, 1905, obtained a record of 121 degrees below zero at only 31,872 feet. Midsummer seems to come in October and midwinter in April. This is thought to have an important effect at the earth's surface, as the cold, heavy, overlying stratum gives the atmosphere unstable equilibrium, producing the variable weather of early spring, while in October the upper stratum is warmer and that at surface cooler, this stable condition yielding more even weather.

BESSEMER

One of Bessemer's earliest commercial ventures, mentioned by Captain Hunt, seems to have been in connection with the manufacture of plumbago or black-lead drawing pencils. Great Britain depended until some time after 1831 for its supply of plumbago, suitable for such pencils, upon a single mine located in Cumberland. This was of immense value to its fortunate owners, and was closely guarded and its production limited. It was operated for but a short time each year, when about 40,000 pounds were taken out; then the mine was again tightly sealed. This plumbago was bought principally by a Jewish syndicate for 40 shillings a pound, and by them manufactured into pencils. We are told that this ring was dependent upon an inner one—the actual cutters of the plumbago—who with great skill, and with a waste of 60 per cent. and for about 20 shillings a pound, sawed the brittle material into thin sticks. The waste realized only about half a crown a pound, and the prepared sticks, when ready for the cedar wood cases, were sold at over 80 shillings a pound. There were no lead pencils with rubber-tipped ends for a penny a piece in those days. Young Bessemer seized upon the opportunity. He built a powerful hydraulic press, and bought up all the refuse and waste plumbago he could find, at about half a crown a pound. In fact, he bought up all the available supply in Great Britain. This he ground, lixiviated, mixed with a proper binding material, and by his powerful hydraulic press formed into compact slabs which were subsequently cut with fine saws into proper sized sticks that were equally as good, if not better, than those made direct from the ore. He could undersell, and so controlled the market.—*Cassier's Magazine.*

NEW TURBINE LOCOMOTIVE

After turbine steamers, turbine locomotives. Prof. Johann Stumpf, of Charlottenburg, Germany, has secured patents on an adaptation of the steam turbine to locomotives. He proposes to divide the turbine into stages, distributing one on each driving axle of the locomotive, and the steam from the boiler to pass through the several stages in succession. A turbine is mounted on the axle on the outside of each driving wheel. With three driving axles the steam is conveyed by a pipe from the boiler to the first turbine on the one side, then to the other. It is then in succession conveyed to the three turbines on the other side of the locomotive, from the third of which the steam pipe leads the exhaust to the exhaust blast nozzle.

DAKOTA'S WONDERFUL WELLS

East of the Missouri River in South Dakota more than 1,000 artesian wells now exist, drawing their water from the supply carried by the underlying sandstone formation, and supposed to come from the Black Hills and the Rocky Mountains. These wells, used mainly for irrigating purposes, are from 500 to 1,000 feet deep, and the pressure of water in the eastern part of the State is sufficient to give a surface flow, except on the highest lands. One well at Springfield yields 3,292 gallons per minute, and furnishes power for a flour mill by day and for an electric light plant by night. The development of this source of water supply is still going forward.

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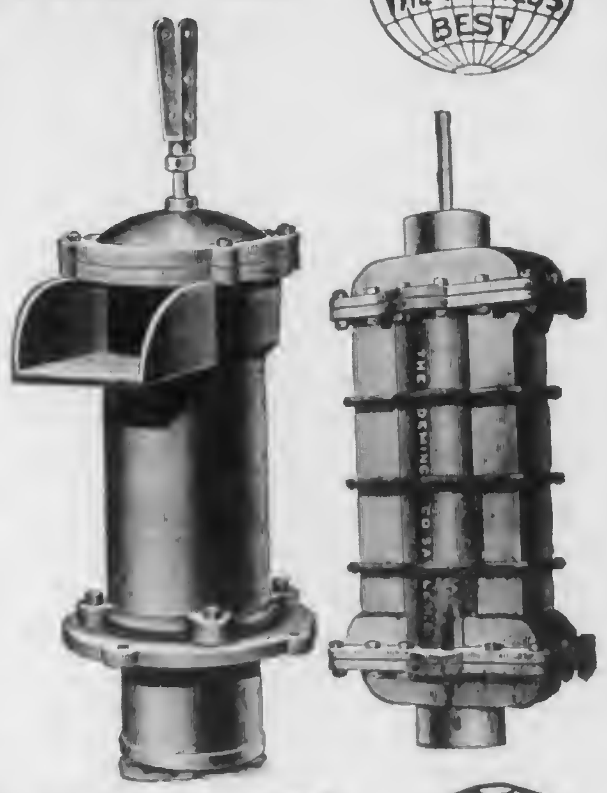

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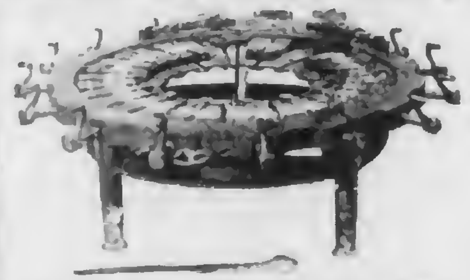

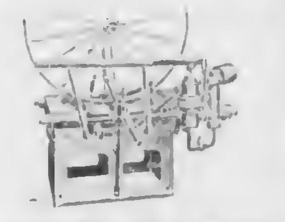

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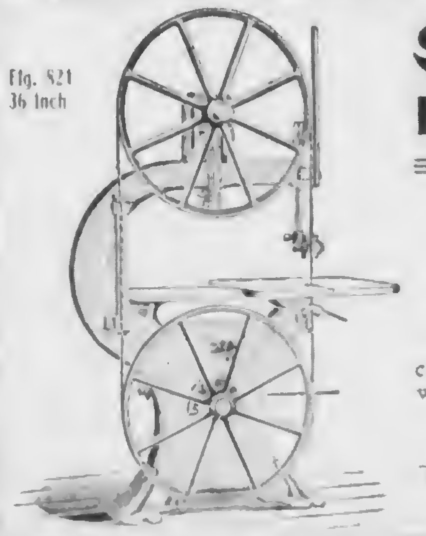

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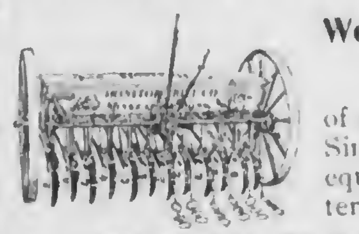

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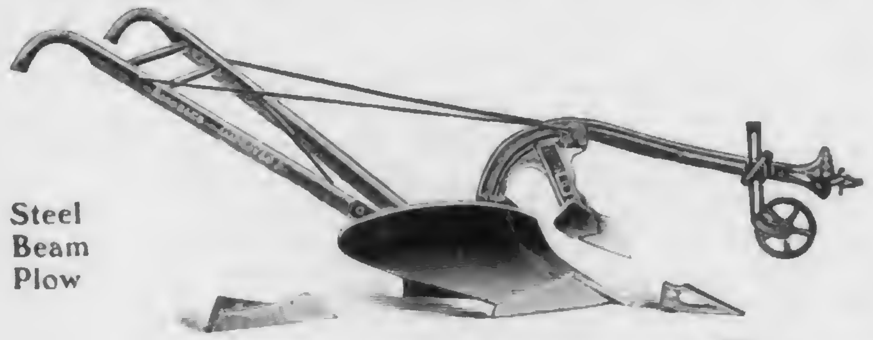
Famous Soil Turners

FOR EXPORT TRADE

Bissell Chilled Plows

STEEL AND WOOD BEAM PATTERNS



Steel Beam Plow

Wood Beam Plow

They do the work and do it long and well.
They're made for all kinds and conditions of soil.
They're low in price.
Large or small orders can be shipped promptly.
Catalogue in English, German, French and Spanish for the asking.

The Ohio Cultivator Co. - Bellevue, Ohio

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EXPORT IMPLEMENT AGE

A Monthly Magazine Devoted to American Agricultural Machinery, Farm Supplies, Vehicles and Vehicle Materials, Machine Tools, Hardware Specialties, Etc.

TEXTE FRANCAIS
Papier Rose

TEXTO ESPANOL
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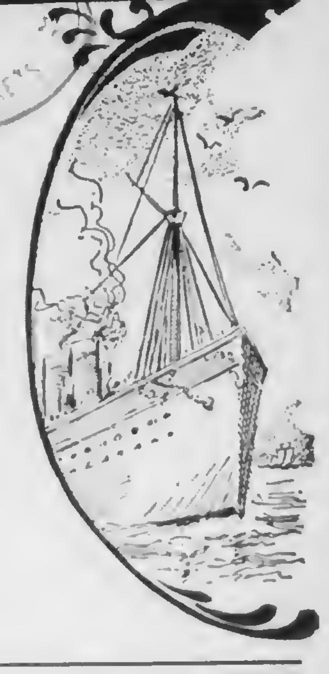
DEUTSCHER TEXT
Blaues Papier

Vol. XIV. PHILADELPHIA, PA., U. S. A., MAY, 1906. No. 2



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Manufacturers of

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Horseshoe Pads

AUTOMOBILE TIRES. VEHICLE TIRES.
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Hose, Tape, Door Mats, Packing, Till Bumpers, Corrugated Matting, Petrol Engine Bags, Knob Matting, Creamery Separator Rings, Etc.

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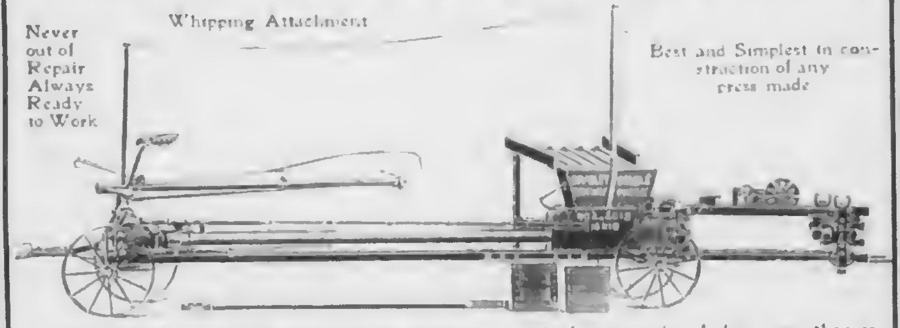
Clincher Automobile Tires

DAVID BRADLEY ..Double Cam.. Steel Hay Press KNOWN THE WORLD OVER



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Best and Simplest in construction of any press made

The David Bradley Baler has very high standing with the foreign trade. It does more than is claimed for it, and does perfect work under all conditions. Write for literature. We answer correspondence in any language.

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La Presse à Foin—à double came de "David Bradley" est connue dans le monde entier. Elle n'est jamais en réparations mais toujours au travail. Elle est la meilleure et la plus simple dans sa construction comparée à toute autre presse manufacturée. Elle est munie d'un secoueur à capuchon. La Presse à Foin "David Bradley" a déjà une grande réputation dans le commerce étranger. Elle parfait plus qu'elle ne prétend et accomplit son travail sous toutes circonstances. Adressez nous pour prospectus, circulaires, etc. Nous répondons en toutes les langues.

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A Plow with Reversible Point and Wing

SOUTH BEND CHILLED PLOW CO.

No. 95

and for this reason a plow that is a rapid seller

The farmer appreciates it because it is always ready with a fresh cutting edge. The upper edge is always being sharpened while the lower one is being used. The matter of reversing them is very quick and simple—no wrench being required, and there is no necessity for turning the plow over.

We highly recommend this Plow for Clay, Gravel, Stone or a Hard Pan Soil

For Further Particulars and Prices address

South Bend Chilled Plow Co. SOUTH BEND INDIANA

Lawn Mowers

FOR HORSE *and* HAND USE

Adapted for all markets of the world.

Established 1870

CHADBORN & COLDWELL MFG. CO.

NEWBURGH
N. Y.
U. S. A.

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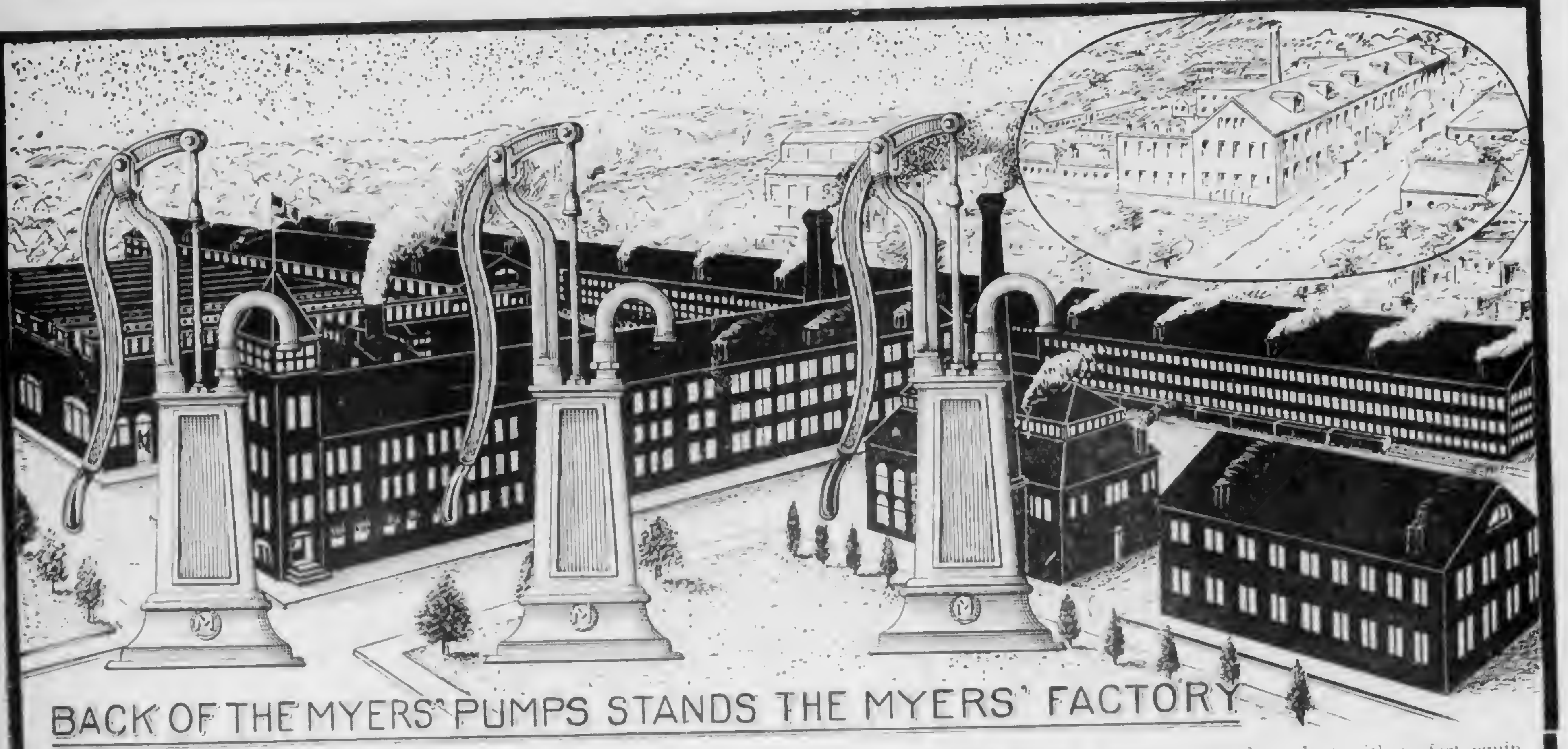
BACK OF THE MYERS' PUMPS STANDS THE MYERS' FACTORY

The largest factory in the United States devoted exclusively to the manufacture of *Pumps* and *Hay Gools:* a modern up-to-date plant with perfect equipment, prepared to fill domestic or export orders of any magnitude promptly and [illegible] kind of Pump for all Pumping Purposes. Best kind of Hay Tools of every description. *MYERS PUMPS and MYERS HAY TOOLS are the First Choice of Progressive Dealers all over the civilized world.* Highest award (Gold Medal) at St. Louis, Pan-American and Charleston Expositions.

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FACTORY:
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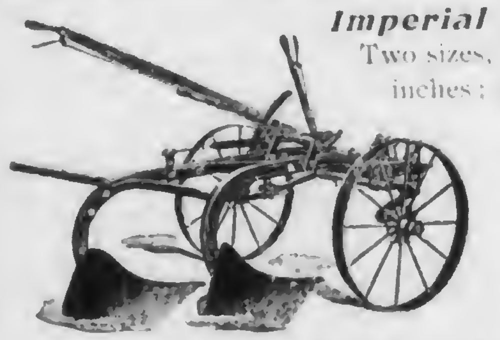


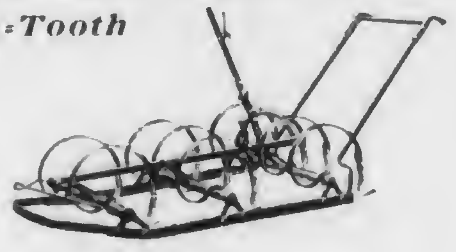
Imperial Stark Gang Plow

Two sizes, cutting 24 inches and 28 inches; all soft centre steel.

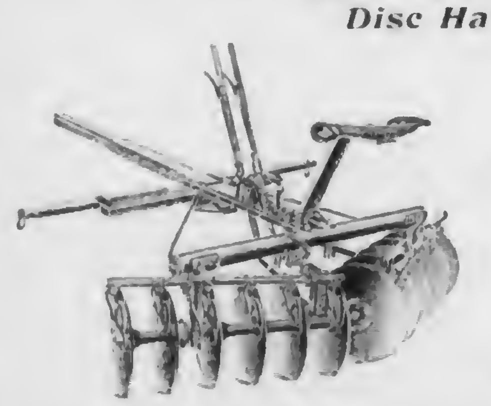
Specially constructed for export trade.

Imperial Spring-Tooth Cultivator

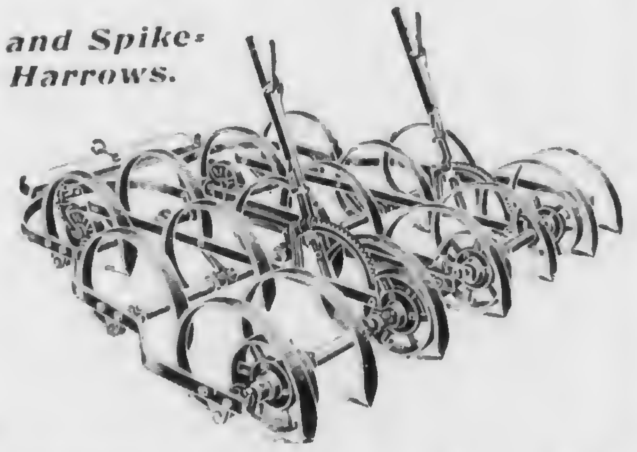
Specially designed for working in vineyards.



Solid and Cut-Out Disc Harrows.



Spring and Spike-Tooth Harrows.



Several sizes and styles.

Full Line Single and Double Furrow Plows, Cultivators, Etc.

CATALOGUE. No. 104 Free on Application.

THE BUCHER & GIBBS PLOW CO. B-21 Produce Exchange, NEW YORK, N. Y., U. S. A.
Factory: CANTON, OHIO.

Directory for Buyers.

The names of firms given below, together with the goods mentioned, are arranged for the convenience of buyers. Their products are given in the English, French, Spanish and German languages. These establishments are among the leading ones in the United States, are strictly reliable, have extensive facilities and are prompt in transacting business. They fully understand the export trade and carefully look after all foreign orders. The EXPORT IMPLEMENT AGE is kept on file in their offices, and any mention of the journal will be an incentive to even greater promptness on their part in obliging you. Inquiries from foreign buyers desiring information relative to American agricultural machinery or implements addressed to them will be given careful and prompt attention. Write in any language you prefer.

Rèpertoire à l'Usage des Acheteurs

Les maisons ci-dessous et les produits mentionnés ont été classés dans cet ordre pour la commodité des acheteurs de langues anglaise, française, espagnole et allemande. Ces établissements sont parmi les principaux des Etats-Unis, ils sont absolument sérieux, ils possèdent de grandes facilités, sont prompts en affaires. Ils connaissent à fond le commerce d'exportation et donnent tous leurs soins à l'exécution des commandes qui leur viennent de l'étranger. Ils conservent une collection de l'EXPORT IMPLEMENT AGE dans leurs bureaux, et la simple mention de ce journal stimulera davantage encore, si possible, leur zèle et leur promptitude à obliger leurs clients. L'EXPORT IMPLEMENT AGE, de son côté, donnera une prompte attention aux demandes de renseignements sur machines et instruments agricoles américains, que peuvent lui adresser les acheteurs de l'étranger. Ecrire dans la langue que l'on préfere.

Directorio para los Compradores.

Los nombres de los artículos que fabrican las firmas ó casas mencionadas á continuación se dan, para conveniencia de los compradores, en los idiomas inglés, francés, español y alemán. Esos establecimientos, que se cuentan entre los principales de los Estados Unidos, están completamente acreditados, son dignos de toda confianza y tienen las mayores facilidades para ejecutar y despachar con prontitud todos sus negocios. Conocen á fondo el comercio de exportación y atienden con el mayor esmero à todos los pedidos que reciben del extranjero. Los números del EXPORT IMPLEMENT AGE se coleccionan en sus oficinas, y toda referencia á esta revista es un incentivo para atender con mayor prontitud aun á vuestros requerimientos. Todos los informes que pidan los compradores del extranjero serán suministrados á la mayor brevedad por esos fabricantes sobre la maquinaria agrícola é instrumentos de labranza americanos. Escribidles en cualquier idioma que prefiráis.

Firmen-Verzeichnis für Käufer.

Die Erzeugnisse der unten genannten Firmen sind für die Bequemlichkeit ausländischer Käufer in englischer, französischer spanischer und deutscher, Sprache hier wiedergegeben. Genannte Etablissemente gehören zu den bedeutendsten in den Vereinigten Staaten; sie sind in jeder Weise zuverlässig, besitzen ausgedehnte Facilitäten und erfreuen sich eines ehrenvollen Rufes. Alle von ihnen unternommenen Geschäftstransaktionen werden in promptester Weise zur Ausführung gebracht. Jedes hierin genannte Haus ist mit dem Exporthandel wohl vertraut und um auswärtige Aufträge eifrig bemüht. Das EXPORT IMPLEMENT AGE wird von all diesen Firmen gelesen, dient ihnen sozusagen als Informations-Register und dürfte somit eine Angabe dieses Journals bei event. Waarenbestellung nur zur Anregung grösserer Promptheit dienen, um p.p. Käufern in bestmöglicher Weise entgegenkommen zu können. Jede auswärtige Anfrage hinsichtlich amerikanischer landwirthschaftlicher Maschinen und Geräthe wird nicht allein prompte, sondern auch stets sorgfältige Aufmerksamkeit erhalten. Interessenten können sich jeder beliebigen Sprache zur Korrespondenz bedienen.

Ambulances
Carros de hospital
Krankenwägen (Ambulanzen)

Baling Presses (Hay, Straw, Etc.)
Presses à foin, paille, etc.
Prensas de Embalar (Heno, Paja, etc.)
Ballen Pressen (für Heu, Stroh, u. s. w.)

Bradley Mfg. Co., David, Bradley, Ill. 1
Collins Plow Co., Quincy, Ill. 29
Ertel Co., George, Quincy, Ill. 6

Beet Implements (Planting, Cultivating and Harvesting)
Betteraves (Instruments pour la culture des)
Instrumentos para el Cultivo de la Remolacha (Sembradoras, Cultivadoras y Cosechadoras)
Rübengeräte (zum Pflanzen, Pflügen und Ernten)

Moline Plow Co., Moline, Ill. 6

Binders, Self (Wheat, Rye, Oats, etc.)
Lieuses Automatiques (Blé, Orge, Avoine, etc.)
Agavilladoras Automáticas (Trigo, centeno avena, etc.)
Selbstbindemaschinen (für Weizen, Roggen, Hafer u. s. w.

Boilers.
Chaudières.
Calderas.
Kessel.

Leffel & Co., James, Springfield, Ohio 20

Bolts and Nuts.
Boulons et écrous.
Pernos y Tuercas.
Bolzen und Muttern (Mutterbolzen)

Columbus Bolt Works, Columbus, Ohio 36

Brakes (Vehicle)
Retrancas (Vehículo)
Frein (de Voiture)
Bremsen (für Fahrzeuge)

Potter Co., The Morgan, Fishkill on Hudson, N. Y. . . 3

Carriages
Voitures
Carruajes
Kaleschen und Wagen

Dapson & Wolf, Oneida, N. Y. 3
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Carriage Cloth
Wagentuch
Paño de carruaje
Drap de Voiture

Fairfield Rubber Co., The, Fairfield, Conn. 5

Carriage Materials
Articles pour voitures
Materials for Carriages
Wagenmaterial

Carts (Riding)
Charrettes (à siège)
Carretones (de Montar)
Frachtkarren (Reitkarren)

Dapson & Wolf Oneida, N. Y. 3

Cider and Wine Presses
Pressoirs à vin et à cidre
Prensas para Hacer Cidra y Vino
Kelterapparate für Wein und Apfelwein

Lansing Wheelbarrow Co., Lansing, Mich. 29

Clothes Washing Machines
Linge (machines à laver le)
Máquinas de Savar Ropa
Wäsche Waschmaschinen

"1900" Washer Co., Binghamton, N. Y. 35

Coal Cars
Charbon (wagons pour)
Carros para Carbón de Piedra
Kohlenwaggons

Lansing Wheelbarrow Co., Lansing, Mich. 29

Coal Shutes
Charbon (Dalles à)
Canales para Descargar Carbón de Piedra
Kohlen Lade-Rinnen

Lansing Wheelbarrow Co., Lansing, Mich. 29

Corn Crushers
Mais (Concasseurs de)
Trituradoras de Maiz
Mais Zerquetschmaschinen

Sprout, Waldron & Co., Muncy, Pa. 8

Corn Harvesters
Mais (Moissonneuses de)
Cosechadoras de Maiz
Mais Erntemaschinen

Standard Harrow Co., Utica, N. Y. 8

Corn Huskers and Shredders
Mais (Instruments à enlever et à déchirer les bractées du)
Desgranadoras y Picadoras de Maiz
Mais Enthülsemaschinen und Auswerfapparate

Bradley Mfg. Co., David, Bradley, Ill. 1

Corn Planters (Hand)
Mais (Semoirs de, à main)
Sembradoras de Maiz (A Mano)
Maispflanzer (für Handbetrieb)

Ohio Cultivator Co., The, Bellevue, Ohio 31

Corn Planters (Horse)
Mais (Semoirs de, à cheval)
Sembradoras de Maiz (para Caballo)
Mais Pflanzmaschinen (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill. . . . .
Moline Plow Co., Moline, Ill. . . . .

Corn Shellers (Hand)
Mais (Egrenoirs de, à main)
Descascaradoras de Maiz (de Mano)
Mais Pflanzmaschinen (für Handbetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Corn Shellers (Power)
Mais (**Egrenoirs de**), à énergie mecanique
Descascaradoras de Maiz (para Fuerza **mecánica**)
Mais Pflanzmaschinen für Pferdebetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch. A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Cotton Planters
Coton (Semoirs de)
Sembradoras de Algodón
Baumwoll Pflanzmaschinen

Ohio Cultivator Co., The, Bellevue, Ohio	36

Cultivating Machinery (Hand and Garden)
Culture du sol (Intruments pour la), á main et pour le jardin
Maquinaria Cultivadora (de Mano y para Huerta)
Garten Pflüge (für Handbetrieb)

Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co. Utica, N. Y.	3

Cultivating Machinery (Horse and Field)
Culture du sol (Instruments pour la), à cheval et pour le champ
Maqninaria Cultivadora (de Caballo y para el Campo)
Bodenkultur Geräte (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill.	1
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Engines and Boilers (Stationary)
Machines à vapeur et Chaudières (fixes)
Maquinas de Vapor y Calderas (Fijas)
Maschinen und Kessel (Stationär)

Leffel & Co., James, Springfield, Ohio	29

Engines (Traction and Portable)
Machines à vapeur (Pour la traction et transportables)
Máquinas (De Tracción y Portátiles)
Traktions- oder Zugmaschinen und Lokomobilen

Feed and Ensilage Cutters
Coupe-aliments, coupe-ensilage
Cortadora de Forraje y Ensilaje
Futter- und Grünfutter (Ensilage) Schneidemaschinen

Marseilles Mfg. Co., Marseilles, Ill.	4
Silver Mfg. Co., Salem Ohio	35

Feed Mills
Moulins pour aliments
Molinos de Frorraje ó Pienso
Futtermühlen

Sprout, Waldron & Co., Muncy, Pa.	3

Files (Letter and Card)
Systèmes de classification (lettres et cartes)
Guarda-Cartas y Tarjetas
Skripturenordner (für Briefe und Karter)

Forgings (Carriage)
Pièces forgees (Voiture)
Forjaduras (para carruajes)
Schmiedereien (Kaleschen-)

Gardening Tools (Hand)
Jardinage (**Outils de**) à main
Herramientas de Hortelano (de Mano)
Gärtnerei Handwerkzeug

Grain Cleaning Machinery (Rice, Coffee, Grain, Etc.)
Grains (**Machines à nettoyer les**); riz, café, grain, etc.
Maquinaria pare Limpiar Granos (Arroz, Café, Granos, Etc.)
Getreide Reinigungsmaschinen (für Reis, Kaffee, Korn, u. s. w.)

Sprout, Waldron & Co., Muncy, Pa.	5

Grain Drills
Grains (**Semoirs de**)
Sembradoras de Granos
Drillmaschinen

Monitor Drill Co., Minneapolis, Minn.	35
Superior Drill Co., Springfield, Ohio	5

Grain Grinding Mills
Grains (**Moulins à moudre les**)
Molinos para Granos
Schrotmühlen

Flint & Walling Mfg. Co., Kendallville, Ind.	3
Kelly Co., The O. S., Springfield, Ohio	36
Marseilles Mfg. Co., Marseilles, Ill.	4
Sprout, Waldron & Co., Muncy, Pa.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Hand Carts (Push)
Charrettes à bras
Carretillas de Mano (de Empuje)
Hand-Schiebekarren

Bradley Mfg. Co., David, Bradley, Ill.	1
Deming Co., The, Salem, Ohio	35
Lansing Wheelbarrow Co., Lansing, Mich.	29

Hand Tools (Shovels, Rakes, Hoes, Scythes, Forks, Etc.)
Outils à main (Pelles, râteaux, houes, faux, fourches, etc.)
Herramientas de Mano (Palas, Rastrillos, Azadones, Guadañas. Horquillas, etc.)
Handwerkzeug (Schaufeln, Rechen, Haken, Sensen, Gabeln, u. s. w.

Harrows (Disc, Spring-Tooth and Spike-Tooth)
Herses (à disques, à dents élastiques, à dents droites)
Mielgas ó Rastrillos (de Disco, con Dientes de Resorte y Otros)
Eggen (mit Scheiben-, Federzahn- und Speichenzahn-Vorrichtung)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Loaders
Foin (**Chargeuses de**)
Cargadoras de Heno
Heu Auflader

Marseilles Mfg. Co., Marseilles, Ill.	4

Hay Presses
Foin (**Presses à**)
Prensas para Heno
Heu Pressen

Bradley Mfg. Co., David, Bradley, Ill.	1
Collins Plow Co., Quincy, Ill.	29
Ertel Co., George, Quincy, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica. N. Y.	3

Hay Rakes
Foin (**Râteaux à**)
Rastros para Heno
Heu Rechen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6

Hay Tools (For Handling Hay)
Foin (**Outils** pour la manipulation du)
Herramientas para Heno (para Manipular el Heno)
Heubearbeitungs-Apparate und Werkzeuge

Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Hods (Steel and Wood)
Auges (Acier et bois)
Artesas de Cargar (de Acero y de Madera)
Tünchkübel (Mörteltröge, aus Stahl und Holz)

Lansing Wheelbarrow Co., Lansing, Mich.	29

Implement Parts (Rake, Teeth, Knife Sections, Etc.)
Pièces de rechange (Dents de râteaux, conteaux de faucheuses, etc.)
Partes de Instrumentos (Dientes de Rastrillo, Secciones de Cuchilla, Etc.)
Theile von Landwirthschaftsgeräthen (Rechenzähne, Messertheile, u. s. w.)

Incubators
Conveuses artificielles
Incubadoras
Brutmaschinen (Inkubatoren)

Ertel Co., George, Quincy, Ill.	6

Lawn Mowers
Tondeuses de gazon
Segadoras ó Cortadoras de Césped
Rasen Mähmaschinen

Clipper Lawn Mower Co., Dixon, Ill	5
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y	1

Leather (Imitation)
Leder (Imitation)
Cuero (Imitación)
Cuir (Imitation)

Fairfield Rubber Co., The, Fairfield, Conn.	5

Machine Tools
Machines-outils
Herramientas Mecánicas
Maschinen-Werkzeug

Silver Mfg. Co., Salem, Ohio	35

Mowers.
Faucheuses.
Segadoras.
Mähmaschinen.

Mills (Corn and Hominy)
Moulins (pour maïs et bouilie)
Molinos (para Moler Maiz Fino y Grueso)
Mühlen (für Getreide und indianisches Reis, Hominy)

Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Oil Cloth
Toile Cirée
Wachstuch

Plows (Walking, Riding and Disc)
Charrues (ordinaires, à siège, à disques)
Arados (de Caminar, de Moutar y de Disco)
Pflüge (Geh-, Fahr- und Scheibenpflüge)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
South Bend Chilled Plow Works, South Bend, Ind.	1
Standard Harrow Co., Utica, N. Y.	3

Potato Machinery
Pommes de terre (Machines pour la culture des)
Maquinaria para Patatas
Kartoffel-Maschinen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Pumps, Hand and Power (Lift, Force and Spray)
Pompes, à main, et à énergie mécanique (Pompes aspirantes, foulantes, pulvérisatrices)
Bompas de Mano y para Fuerza Mecánica (Aspirantes, de Forzar y de Rociar)
Pumpen, Hand- und Kraftpumpen (Hebe-, Druck- und Besprengungs-Pumpen)

Deming Co., The, Salem, Ohio	35
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Reapers.
Moissonneuses.
Cosechadoras
Getreide-Mähmaschinen.

Rollers (Field or Road)
Rouleaux (pour champs et pour routes)
Rodillos (para Campo y para Caminos)
Feld- und Weg-Walzen

Bradley Mfg. Co., David, Bradley, Ill.	1
Lansing Wheelbarrow Co., Lansing, Mich.	29
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Rubber Goods
Articles de caoutchouc
Articulos de Caucho
Gummiwaaren

Rubber Tires
Gummireifen
Bandes de roues en caoutchouc
Llantas de Caucho para Ruedas

Morgan & Wright, Chicago, Ill	1

Scrapers (Road)
Ratissoires (pour routes)
Dragas (para Caminos)
Strassen Scharr-Maschinen (Strassen-Ebener)

Standard Harrow Co., Utica, N. Y.	3

Seeders, Broadcast (Grain and Grass)
Semoirs pour semer à la volée (Grain et graminées)
Máquinas de Sembrar Semillas al Vuelo (Granos y Semilla de Yerbas)
Breitsämaschinen (für Getreide und Gras)

Sharpeners and Grinders
Machines à remoudre et à aiguiser
Afiladoras y Amoladoras
Schärfe- und Schleif-Apparate

Sleighs
Traineaux
Trineos
Schlitten

Dapson & Wolf, Oneida, N. Y.	

Sprayers and Nozzles
Instruments d'arrosage
Rociadoras y Boquereles
Besprengungs-Spritzen und Uebernasen

Deming Co., The, Salem, Ohio	35
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
Standard Harrow Co., Utica, N. Y.	3

Stalk Cutters
Coupe-chaume
Cortadoras de Tallos
Stengel Abschneider

Street Sprinklers
Arrosage des rues (Tonneaux pour l')
Regadoras de Calle
Strassen Bespreng-Wagen

Studebaker Bros. Mfg. Co., South Bend, Ind.	36

Sugar Cultivating Implements
Sucre (**Instruments pour la culture de la canne à**)
Instrumentos para el Cultivo Azucarero
Zucker-Anbau Geräthe

Threshing Machinery
Machines à battre
Maquinaria de Trillar
Dresch Maschinen

Tire Setters
Machines à fixer les bandes de roues
Maquinas de Poner Llantas
Maschinen zum Aufsetzen von Gummireifen

Standard Tire Setter Co., Keokuk, Iowa	36

Tread Powers (Horse, Dog, Sheep, Etc.)
Machines à utiliser l'energie de la marche (Cheval, Chien, Mouton, etc.)
Motores de Pisada (para Caballo, Perro, Carnero, etc.)
Kraft-Tretmaschinen (Pferde, Hunde, Schafe, u. s. w.)

Trucks (Hand Warehouse)
Trucs (Emmagasinage à bras)
Carretillas de Mano para almacén
Transport Handwagen (für Waarenhäuser)

Lansing Wheelbarrow Co. Lansing, Mich.	29

Wagons (Business)
Charettes (d'affaires)
Carros (para negocios)
Wägen (Geschäftswägen)

Wagons and Buck-Wagons
Charrettes et charrettes à lessive
Carretones y Carretas
Wägen und Bockwägen

Ohio Valley Wagon Co., The, Marietta, Ohio	

Wagons and Carts (Farm)
Wagonnets et charrettes (Ferme)
Carretones y Carretas (para Hacienda)
Landwirthschaftliche Wagen und Karren

Lansing Wheelbarrow Co., Lansing, Mich.	29
Studebaker Bros. Mfg. Co., South Bend, Ind.	36

Weeders
Sarcloirs mécaniques
Desyerbadoras
Jäte Maschinen

Standard Harrow Co., Utica, N. Y.	3

Well Tools and Drilling Machinery
Outils pour puits et machines à forer
Instrumentos para Abrir Pozos y Maquinaria para Horadar
Brunnen-Werkzeug und Bohr-Maschinen

Flint & Walling Mfg. Co., Kendallville, Ind.	3

Wheelbarrows
Brouettes
Carretillas
Schiebekarren

Lansing Wheelbarrow Co., Lansing, Mich.	29

Wheels (Carriage)
Roues (Voiture)
Ruedas (Carruaje)
Räder (Kaleschen und Wagen)

Wheels and Wheel Materials
Roues et articles pour roues
Ruedas y Materiales para Ruedas
Räder und Rädermaterialien

Windmills (Towers and Tanks)
Moulins à vent (Tours et réservoirs)
Molinos de Viento (Torres y Tanques)
Windmühlen (Thurm- und Bütten)

Flint & Walling Mfg. Co., Kendallville, Ind.	3
Marseilles Mfg. Co., Marseilles, Ill.	4
U. S. Wind Engine and Pump Co., Batavia, Ill.	81

Wood Sawing Machinery
Bois (Machines à scierie)
Maquinaria para Aserar Madera
Holzsäge-Maschinen

Marseilles Mfg. Co., Marseilles, Ill.	4
U. S. Wind Engine and Pump Co., Batavia, Ill.	81

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Kelly Co., The O. S., Springfield, Ohio 36

Lansing Wheelbarrow Co., Lansing, Mich. 29
Leffel & Co., James, Springfield, Ohio 29

Marseilles Mfg. Co., Marseilles, Ill. 4
Moline Plow Co., Moline, Ill. 6
Monitor Drill Co., Minneapolis, Minn. 35
Morgan & Wright, Chicago, Ill. 1
Myers & Bro., F. E., Ashland, Ohie 2

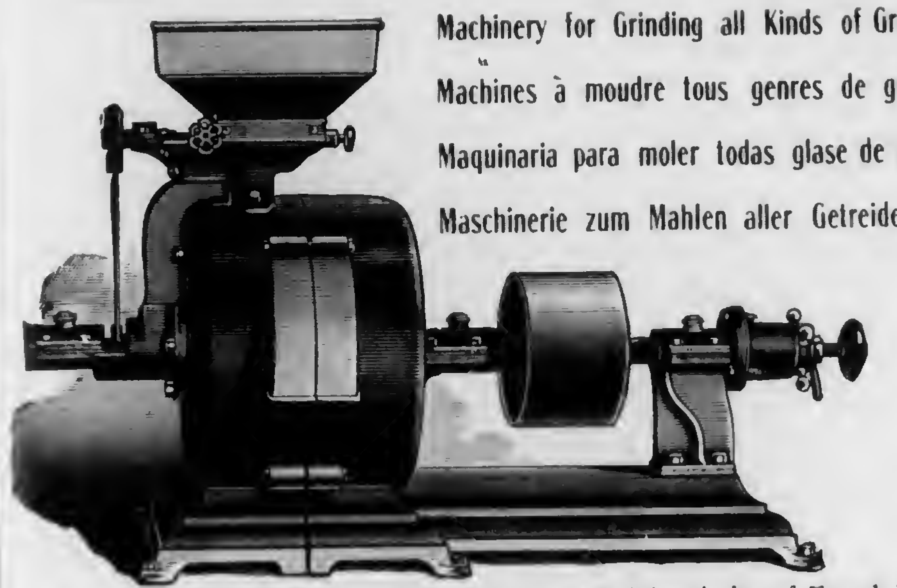
"1900" Washer Co., Binghamton, N. Y. 35

Ohio Cultivator Co., The, Bellevue, Ohio 36

Patch, A. H., Clarksville, Tenn. 5
Potter Co., Morgan, Fishkill-on-Hudson, N. Y. . . 3

Silver Mfg. Co., The, Salem, Ohio 35
Sprout, Waldron & Co., Muncy, Pa. 3
Standard Harrow Co., The, Utica, N. Y. 3
Standard Tire Setter Co., Keokuk, Iowa 35
Studebaker Bros. Mfg. Co., South Bend, Ind. . . . 36
Superior Drill Co., Springfield, Ohio 5
South Bend Chilled Plow Co., South Bend, Ind. . 1

U. S. Wind Engine and Pump Co., Batavia, Ill. . 31



Machinery for Grinding all Kinds of Grain
Machines à moudre tous genres de grains
Maquinaria para moler todas glase de granos
Maschinerie zum Mahlen aller Getreidesorten

Write for one of our booklets which gives a full description of French Burr and Attrition, Feed and Meal Mills, Cotton Seed and Linseed Oil Cake Mills, Emery Rock Mills, Cotton, Ear and Ore Crushers, Magnetic Separators, Corn Shellers, etc.

Ecrivez pour un pamphlet contenant description détaillée de moulins à meules de France et à frottement, de moulins pour grains de cotton et de tourteaux de lin, de moulins à pierre d'émeri, de broyeurs d'épis et de minérais, de moulins magnétiques, d'écosseurs, etc.

Escríbasenos pidiendo uno de nuestros libritos, en que se da una completa descripción de nuestros Molinos de Piedra Francesa y de Roce, para Pienso y para Harina, Molinos de Semillas de Algodón, y para moler Tortas de Aceite de Semillas de Linaza, Molinos para Roca de Esmeril, Trituradoras de Algodón, Mazorcas y Minerales, Separedoras Magnéticas, Desgranadoras de Maiz, etc.

Man verlange eines unserer Büchlein, das volle Beschreibung unserer französischen Mahlsteine und Reibevorrichtung enthält, wie auch aller Futter-Vorrichtungen, Mehl-Mühlen, Baumwollensaamen- und Leinölsaamen Kuchen-Mühlen, Schmirgel-Bergmühlen, Baumwollen-, Aehren- und Erzzerstückelungs-Maschinen, magnetische Separatoren, Korn-Enthülsemaschinen, u. s. w.

SPROUT, WALDRON & CO.

Drawer M. MUNCY, PA., U. S. A.

The Standard Harrow Co.

UTICA, N. Y., U. S. A.

ABERDEEN, SR. SPRING-TOOTH HARROW

Unequalled Strength

No Clogging

Reversible Points on Teeth

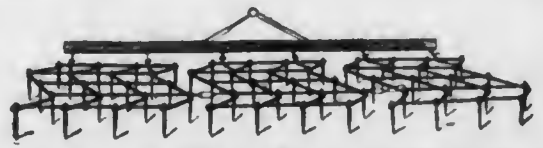
THE STANDARD LINE includes one and two-section Spring-Tooth Harrows and all styles and sizes of Spike-tooth and Disc Harrows, Cultivating Implements, Potato Harvesters, Potato Sprayers, etc., and is one of the most favorably known lines in the leading agricultural countries.

We guarantee prompt service for all export orders. Our factory is only five hours' ride from New York City.

WRITE IN YOUR OWN LANGUAGE FOR CATALOGUE F

ZIG ZAG STEEL SPIKE-TOOTH HARROW

20-Tooth Sections
½-inch Teeth



EASY RIDING

This two-wheeler is our leading specialty for export.

We equip it with RUBBER TIRES, if desired, put on with two wires. The work, like the job itself, is sold under our positive guarantee.

LET US SEND YOU THE PRICES

Dapson & Wolf
ONEIDA, NEW YORK, U. S. A.
WHOLESALE MAKERS OF
FINE CARRIAGES

POTTER'S SPRING BRAKE BLOCKS...

Very substantial. Over 25,000 sets in use throughout the United States. We make them for Steel Tires, and they are especially adapted for Rubber Tires.

Will Not Injure Rubber Tire a Particle

We solicit your correspondence

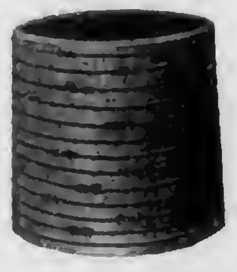
The Morgan Potter Company
FISHKILL-ON-HUDSON, N. Y., U. S. A.

A Windmill that does satisfactory work naturally is the one you want. The "STAR" is the one that pleases. Our booklets in English, German, French and Spanish tell all about

"STAR" WINDMILLS

designed for the heavy and varied work required of them abroad. The "STAR" is built in all sizes, thoroughly galvanized, has ball bearings and is the easiest running Mill made.

"STAR" PUMPING MILL



For many years we have been exporting Windmills and know what is needed to meet all requirements and please our foreign friends. We understand how these goods should be packed for safe delivery, and the packing receives our most careful attention. With all the required parts at hand and properly fitted it facilitates the assembling and erecting of the Mills.

We build **Hand and Windmill Pumps** of various designs all sizes of **Pine, Cypress** and **Galvanized Steel Tanks, Galvanized Steel Towers** any height **Power Windmills** for grinding feed and running light machinery and **Steel Substructures** all heights, to support Tanks of any capacity.

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New York Office, 96 Wall Street, New York, U. S. A.

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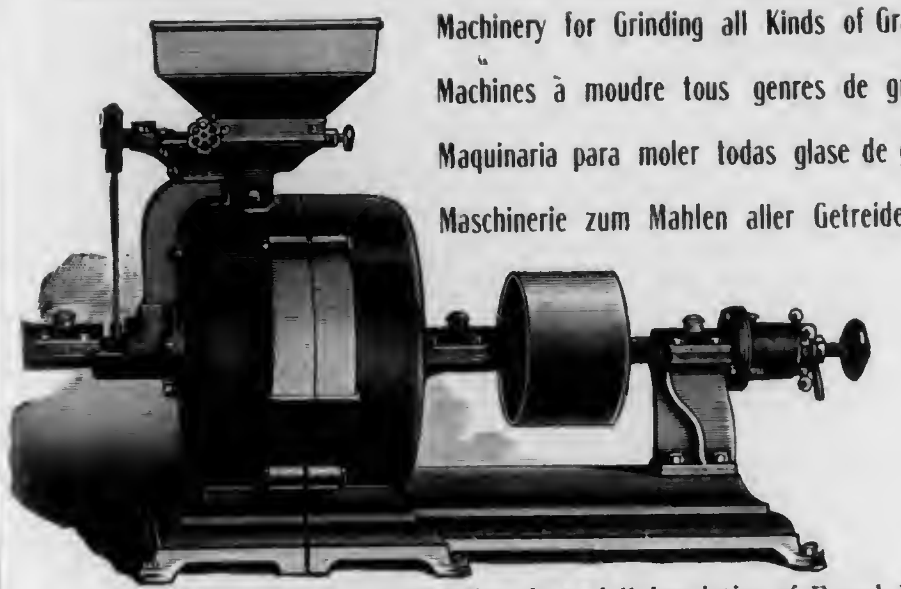

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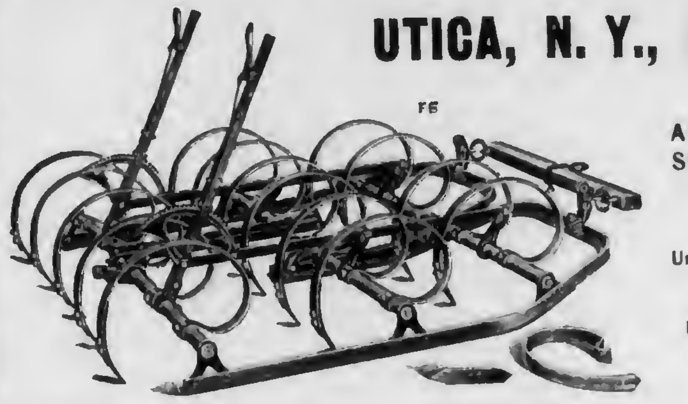

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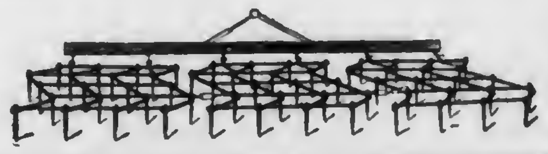

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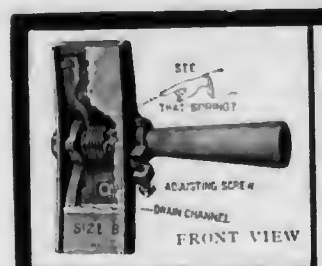
FINE CARRIAGES



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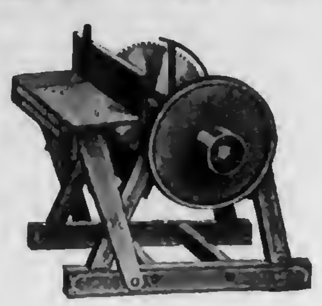
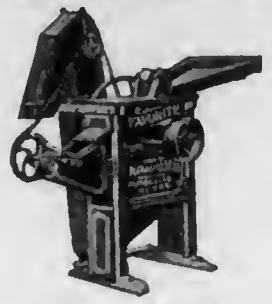
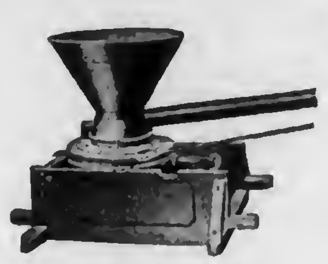
INTENTIONAL SECOND EXPOSURE

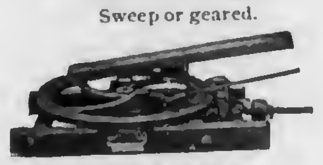

WOOD SAWS.
Steel or wood frames.


TWO HOLE HAND CORN SHELLER.

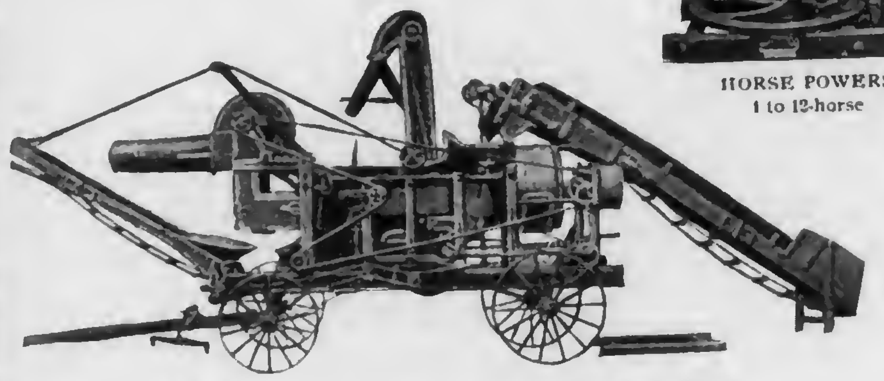

FEED GRINDERS
Sweep or geared.

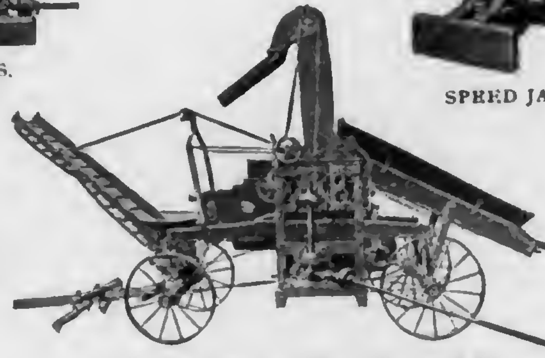
HAND SHELLER

FARM FANNING MILLS.


HORSE POWERS.
1 to 12-horse

SPEED JACKS.


NEW PROCESS DUSTLESS CYLINDER CORN SHELLER
For husked or unhusked corn, made in three sizes, capacities ranging from 400 to 1,200 bushels per hour


CYCLONE COMBINATION FORCE FEED CORN SHELLER
All sizes and styles for horse power or engine.

PUMPING JACKS

Address MARSEILLES MF'G. CO. MARSEILLES, ILL. U.S.A. CABLE ADDRESS { A.B.C. Code "ADAMS MARSEILLES" Western Union Code "ADAMS"

Extend your trade beyond the seas

AMERICAN manufactures are not only in demand, but in many cases are given the preference in foreign countries. Especially is this true of Agricultural Machinery, Farm Supplies, Vehicles and Hardware Specialties. If you are manufacturing any of these goods voice it abroad and make the world your field. You can do it just as easily as you can secure home trade if you'll talk through the

Export Implement Age

IT REACHES ALL FOREIGN COUNTRIES
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Superior Grain Drills

Semoirs Supérieurs de Grains. Manufacturés en une grande variété de dimensions pour Grains seulement on pour Grains et Fertilisants mélangés, avec Disque, Houe et Soc creusant les sillons. Nous manufacturons des modè'es spéciaux de Semoirs de Grains pour l'Europe, l'Australie, l'Amerique du Sud et le Sud de l'Afrique. Demandez les Catalogues descriptifs illustres.

Sembradoras Superiores de Granos. Se fabrican de muchos tamaños de sembrar Granos sóla ó combinada con Fertilizador, con surcadores de Disco, de Azadón ó Zapatillas. Nosotros fabricamos Sembradoras de tipos especiales para Europa, Australia, Sud América y el Africa del Sur. Envíese por un Catálogo descriptivo ilustrado.

"Superior" Getreiderillen. Wird in vielseitiger Auswahl von Grössen hergestellt: Einfache Getreiderillen und Kombinationen von Getreide und Pflugrillen mit Scheiben, Hauen und Schuh-Lockerungs Vorrichtungen. Wir fabriziren besondere Arten von Getreiderillen für Europa, Australien, Süd-Amerika und Süd-Afrika. Man verlange illustrirte beschreibende Kataloge.

We manufacture special types of Grain Drills for Europe, Australia, South America and South Africa

Made in a large variety of sizes in Plain Grain and combined Grain and Fertilizer, with Disc, Hoe and Shoe furrow openers

THE SUPERIOR DRILL CO., Springfield, O., U.S.A.

THE FAIRFIELD RUBBER CO.

Manufacturees of

Carriage Cloth, Imitation Leather, Etc.

FAIRFIELD, CONN., U. S. A.

We believe you will find our cloths more desirable fabrics than have been presented for your consideration.

Not only do we offer our lines as superior to any, but some are special with us.

We warrant all our goods in every manner, and in all climates.

All we ask is a trial of our productions, as we know the result will be in our favor.

Our many years' connection with the foreign trade places us in a position to know fully as to their wants, and the large orders we receive from that field convinces us that the high standard at which we have kept our goods is appreciated. We refer with pleasure to any leading Export house in New York as to the merit of our cloths.

Send for quotations through any Export house, or write us direct.

When ordering goods in our line, ask for goods made by

The Fairfield Rubber Co.

CLIPPER LAWN MOWER CO. DIXON ILLINOIS

THE MOWER that will **kill all the Weeds in your Lawns.** If you keep the weeds cut so they do not go to seed, and cut your grass without breaking the small feeders of roots, the grass will become thick and the weeds will disappear.

THE CLIPPER WILL DO IT

Ask Your Dealer for Them

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Wgt 17 Lbs.

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Corn, Wheat,
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Despues de 37 años que construimos prensas para heno, paja, lana, algodón y forraje de maíz tenemos que ser expertos en ese ramo, y por lo tanto reclamamos que nuestras prensas son las más simples y las más livianas para el acarreo por parejas de caballos, y las enfardadadoras mejores que existen hoy en el mercado.
Nuestras prensas enfardan de 10 á 18 toneladas de heno por dia.
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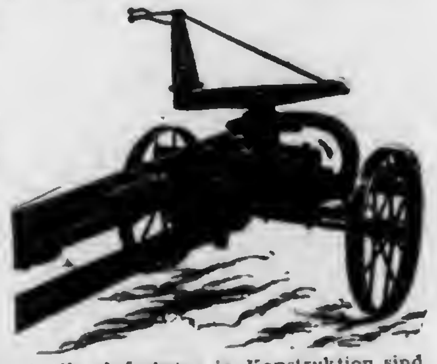
37 Jahre ununterbrochener Fabrikation von Heupressen, Strohpressen, Wolle- und Baumwollenpressen, wie auch Maisfutter-Pressen, sollte uns wahrlich in den Stand gesetzt haben, Experten dieser Branche geworden zu sein; wir beanspruchen deshalb für unsere Pressen, dass sie die einfachsten in Konstruktion sind, beim Gespann den leichtesten Zug haben und zum Emballiren die vorzüglichsten Dienste leisten. Unsere Pressen sind im Stande 10 bis 18 "Tonnengehalt" Heu und 10 bis 15 "Tonnengehalt" Stroh täglich zu emballiren.



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We make a line of both Full Circle and Half Circle Presses.
Prices, f. o. b. cars New York City, on our Gem Full Circle Balers, properly crated for export:

	Net Weight.	Gross Weight.	Space	Prices.
14 x 18 Baler	2,650 (1,457 Kilos)	3,700	115 cubic feet	$215.25 (£44.16.10)
16 x 18 Baler	2,775 (1,526 Kilos)	3,800	171 cubic feet	218.00 (£45. 8. 4)
17 x 22 Baler	2,975 (1,636 Kilos)	4,000	120 cubic feet	221.50 (£46. 3. 0)

Notre presse "Gem" à cercle entier

Nous fabriquons un assortiment de presses à demi-cercle et à cercle entier.
Prix de nos presses "Gem" à cercle entier, mises en wagon à New York et convenablement emballées pour l'exportation:

	Poids net.	Poids brut.	Espace.	Prix.
Presse 14 x 18	2,650 (1,457 kilos)	3,700	115 pieds cubes	$215.25 (£44.16.10)
Presse 16 x 18	2,775 (1,526 kilos)	3,800	171 pieds cubes	218.00 (£45. 8. 4)
Presse 17 x 22	2,975 (1,636 kilos)	4,000	120 pieds cubes	221.50 (£46. 3. 0)

Nuestra Prensa "Gem" Circulo Entero

Nosotros fabricamos un surtido completo de prensas tanto de medio circulo como de circulo entero. Los precios de embarque de la Prensa "Gem" son franco á bordo de los carros hasta New York, y se empaquetan con seguridad para exportarlas.

	Peso Bruto.	Neto.	Espacio.	Precio.
Prensa 14 x 18	2,650 (1,457 Kilos)	3,700	115 piés cúbicos	$215.25 (£44.16.10)
Prensa 16 x 18	2,775 (1,526 Kilos)	3,800	171 piés cúbicos	218.00 (£45. 8. 4)
Prensa 17 x 22	2,975 (1,636 Kilos)	4,000	120 piés cúbicos	221.50 (£46. 3. 0)

Unsere Voll-Zirkel "Gem" Presse.

Wir fabriziren ein Assortiment von Voll- und Halbzirkel-Pressen.
Preise unserer Vollzirkel Emballage-Pressen, frei Board New York, fertig für den Exportversand verpackt:

	Nettogewicht.	Bruttogewicht.	Rauminhalt.	Preise.
14 x 18 Presse	2,650 (1,457 Kilo)	3,700	115 Kubikfuss	$215.25 (£44.16.10)
16 x 18 Presse	2,775 (1,526 Kilo)	3,800	171 Kubikfuss	218.00 (£45. 8. 4)
17 x 22 Presse	2,975 (1,636 Kilo)	4,000	120 Kubikfuss	221.50 (£46. 3. 0)

GEO. ERTEL CO. - 597 Kentucky Street, Quincy, Ill., U. S. A.

EXPORT IMPLEMENT AGE

Vol. XIV. Philadelphia, Pa., U. S. A., May, 1906. No. 2.

THE WORLD'S PROGRESS CHRONICLED BY INVENTIONS

A common nail is an excellent illustration of the difference between old and new methods. Formerly the metal was cut into strips and then forged into shape with hammers, and an expert took about one and one-half minutes for each nail. To-day they are made of steel, and are lighter and stronger. Strips are cut with steam shears and fed into automatic nail machines. One man tends three machines, each machine dropping a nail every second.

May Island, Great Britain, now possesses a foghorn which can be heard eighteen miles away. Several similar ones are to be installed in neighboring lighthouses to safeguard the ships entering the Firth of Forth.

Professor Cerebotani, a Frenchman is said to have perfected an apparatus which will transmit by wire all the peculiarities of a man's handwriting or drawing, enabling him to sign checks 1,000 miles away, or write a legal document or draw a picture. But one wire is needed, and the machinery is quite simple. There is a clock movement controlling a wire, and one rod makes a circular movement, while another makes direct perpendicular and horizontal strokes.

On the hand of a man who had lost a middle finger by accident, Professor von Eifelsberg, of Vienna, has successfully grafted one of the man's toes, which, it is thought, he will shortly be able to use as a finger.

Professor Classen, of Aix-la-Chapelle, has brought out a process of making alcohol from sawdust. The cellulose is treated with gaseous sulphuric acid, and glucose formed, and is converted into alcohol by fermentation. A ton of sawdust yields about fifty gallons of crude alcohol, or twenty-five gallons of absolute alcohol. It is expected, however, that in time thirty gallons or more will be obtained.

A new type of engine, known as the "monkey-motion" pattern, which, it is said, will revolutionize steam locomotion on railroads, has been successfully operated on the Southern Pacific. A train of 1,500 tons was hauled from Ogden to Wadsworth, Nev., by one of the new engines. All the driving mechanism is on the sides, making it easy of access. The steam exhausts very rapidly, and there is no back pressure. It is estimated that the new engine will save from 25 to 40 per cent. in coal consumption, being able to run fifty-four miles with one ton of coal, as against twenty-five to twenty-eight miles under the present system.

According to a German publication, Sweden is planning to use for electricity every ounce of water now going to waste over her falls and

Specimens of Young America interested in scientific corn (maize) growing. These boys live in the state of Indiana near the town of Remington, and are taking part in a Boys' Corn Growing Contest. Their picture was taken after they had listened to a practical address on corn culture by an expert. They will receive constant instruction and similar contests are being carried on throughout the county. This is a striking illustration of how modern, business-like methods are reaching the farm. The above cut has been kindly loaned to us by the *Indiana Farmer*, Indianapolis, Indiana, U. S. A.

in her rivers. Engineers are in the hills making surveys, and capital is getting ready for the call that is sure to come just as soon as the surveys are completed. The same may be said of Norway, where the waters have shorter distances to run, but are often of tremendous volume. In Sweden the power will be put to work in all manner of mills; in Norway in the mines—iron and copper.

Geographers, representing the principal nations, are at work upon a map of the entire earth on a scale of 1 to 1,000,000, and Professor Penck, the German geographer, reports that sixty-nine sheets out of 437 planned, have been completed. A distance of one mile will be represented by a space about one-sixteenth of an inch long.

One of the Berlin papers tells of a new device for catching herrings. A German inventor places a microphone in a metal box perfectly water-tight, and plunges it into the sea in order to ascertain if the fish are passing that way. A wire connects the submerged microphone (which greatly increases the volume of small sounds) to an ordinary receiver, with which one listens to what is going on in the depths of the sea. Excellent results have been obtained in the North Sea by the invention for signaling the passing of the herring shoals.

Clocks are now being made which speak the hours, instead of striking them, through an ingenious application of the phonograph. They are arranged to call out in various degrees of modulation some loud enough to rouse the soundest sleeper.

The making of glass bricks for buildings as well as paving has become a recognized European industry. As usual, the Germans have carried the invention further than anybody else. In Hamburg glass walls are erected where light is needed, yet where, by police regulations, walls must be both windowless and fireproof. Three firms make such bricks in eastern Germany. These bricks are translucent, admitting light, but permitting no view of the interior.

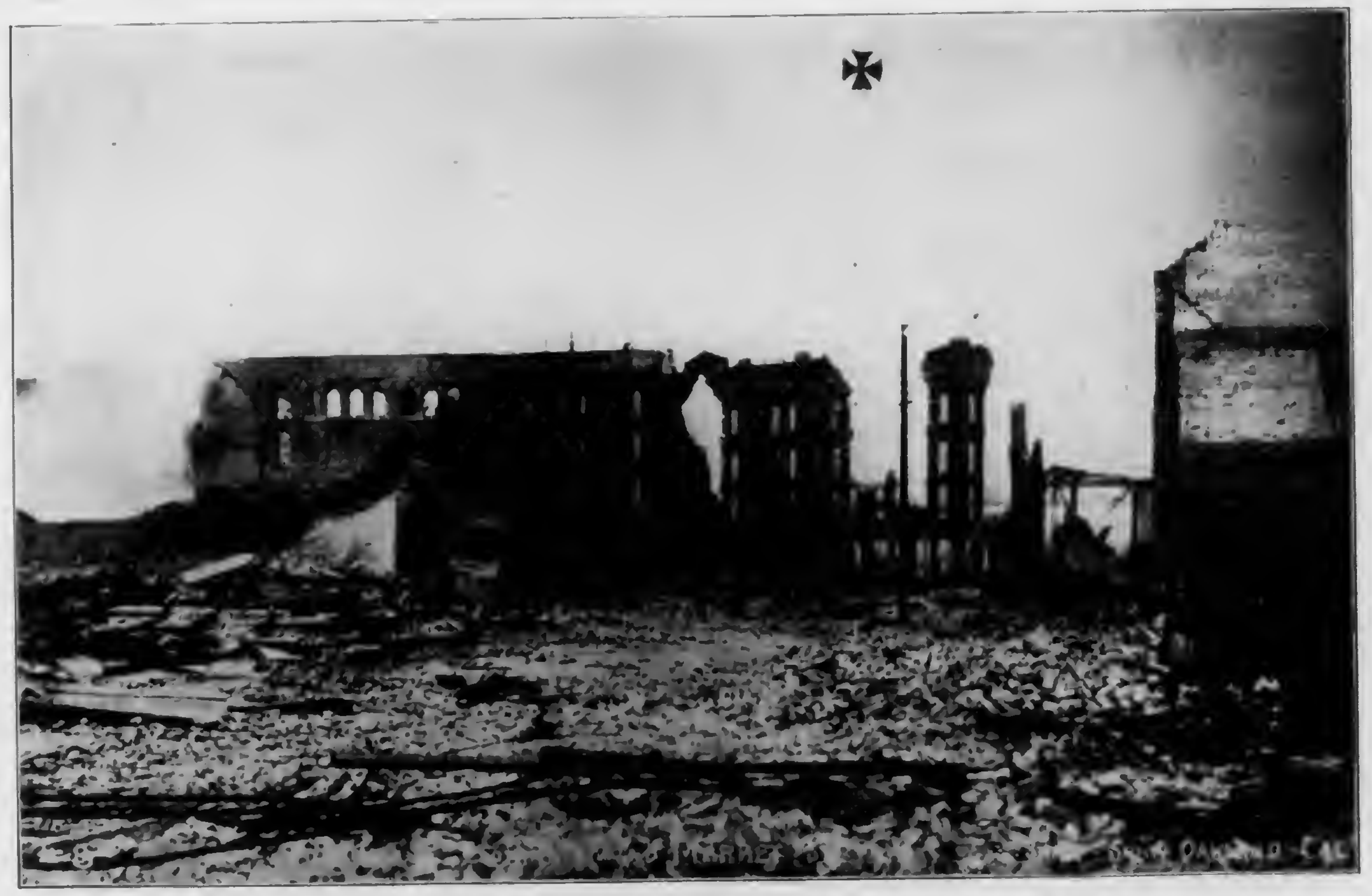
A new death-dealing instrument has been invented. A Lithuanian gentleman, Theodor Troitz, has contrived a gun, worked by electricity, which will fire from 4,000 to 12,000 shots a minute. The range of this new weapon is three miles, and its destructive power, if all claims on its behalf are genuine, should put in the shade such trivial toys as magazine rifles. The gun only requires one man to work it.

The Ratcliff-Rotherhithe tunnel, now being built under the Thames, will take five years to construct. Its length will be 6,883 feet, with an external diameter of 30 feet, which will allow a carriageway of 16 feet and two footways, four feet eight and one-half inches wide. When it is finished there will be three tunnels under the Thames at London.

It is announced that a Lancashire, England, mechanic has invented a machine which will sew direct from two reels of thread, thus obviating the winding of spools and threading of shuttles.—*Chicago Tribune.*

DOES STEEL GROW TIRED?

An interesting problem, often discussed, is whether iron or steel becomes changed in its properties by what is termed "fatigue." Most probably, according to R. A. Hadfield, says *Engineering*, it does not, if the material is, in the first or original, state properly prepared. Failures, so-called, of this kind are generally owing to the steel possessing either internal flaws, which are often only detected by an examination of its micro-structure, or that it has not been in the proper condition when sent out to the user. So-called "mysterious failures" are generally due to improper heat treatment, and are quite apparent when adequately investigated. A recent writer states that, after long experience, he has found steel does not change by fatigue—that is, under ordinary working loads; "once right, always right" is his explanation. This investigator took a large number of specimens that had been many years in use, some having given satisfactory, some unsatisfactory results, and he detected no difference or breakdown in the mechanical qualities. Probably this conclusion is correct. At Watertown Arsenal, the official testing department of the American Government, interesting tests have been made upon iron, which had been submitted to severe mechanical treatment twenty-three years ago—that is, it had been stressed close up to the elastic limit, and then laid on one side. No change in quality could be detected. The characteristic of the earlier overstrained condition produced by the loads applied so long before still remained.



SECTION OF RUINS IN SAN FRANCISCO,

Showing what is left of the establishment of Baker & Hamilton, implement and vehicle jobbers, on the right, indicated by cross. The site is the corner of Pine and Davis streets. This strong structure and its neighbor practically withstood the shocks of the earthquake, but went to destruction under the withering blast of fire which left only smouldering ruins and a portion of the wall

Leading Implement Manufacturers

Among our best known manufacturers of implements are the Ohio Cultivator Co., Bellevue, Ohio, U. S. A. This company have now in the course of erection a new addition to their foundry, which is already one of the largest in the State of Ohio. This announcement is of more than ordinary interest, because it was only recently that the company completed their splendid new foundry building which was thought to be sufficient for some time to come. And now an extensive addition is being built.

H. C. STAHL

President of the Ohio Cultivator Company

The growth of the Ohio Cultivator Co. in the past few years has been remarkable. New buildings, extensions and additions have been followed in rapid succession. To-day the factory is from thirty to forty days behind with orders. Behind this remarkable development there must be some forces at work that account for the commanding position which the company have attained in the trade. In the personalities of H. C. Stahl, president of the company, and D. V. Booher, secretary and manager, is found the secret of this advancement. President Stahl is a man of broad, liberal views, a captain of industry in the true sense of the term, always ready to make the outlay necessary to keep pace with the growing demands of the trade. Secretary Booher is an executive officer with an intimate knowledge of the needs of the business in its every detail, and a progressive spirit never content with standing still, but always foreseeing the possibilities and preparing for bigger business. Under the management of Mr. Booher the business has increased in a phenomenal manner both in this country and abroad. We quote from the Bellevue *Gazette:*

"The business of the Ohio Cultivator Co. is expanding at such a rapid rate that constant addition and extensions are rendered necessary. The growth and development of this, Bellevue's largest industrial establishment, is simply marvelous.

"The company are behind from thirty to forty days with orders, and it has been found necessary to turn away lots of business this spring on account of inability to fill the orders. Extensive as the cultivator plant is at present, it is inadequate to care for their rapidly growing business.

"In an interview with the *Gazette* recently, President Stahl stated that the company would at once commence the erection of an addition to the foundry which, large as it is, has already proved inadequate. When it is remembered that the present foundry building is one of the very largest in the State, being 250 feet long and 76 feet wide, it means considerable. The new addition will be 200 feet long which will be added to the east end, making a building 450 feet in length.

"Work on the new addition was commenced on May 1st, and it is hoped to have it completed and ready for business by the first of August. The ground now occupied by the old lumber yard will be utilized for this improvement. This is but one of the many extensions and improvements contemplated.

"Mention in the *Gazette* has already been made of the fact that a second and probably third story will be added to the old foundry building. The second floor to be used for fitting plows and the third floor will be used for storage purposes. President Stahl intimated that the company have under consideration still greater and more extensive improvements to be made on factory No. 2, but the plans have not been fully matured, and announcement of the exact nature of the improvement could not not be made public just this moment. The demand for the Bissell plows now manufactured at the plant is enormous, and the company find it impossible to fill orders received. Two solid cars of these plows were shipped this week. The foreign as well as the domestic trade is increasing, and the Famous Ohio implements are sent to all parts of the world.

D. V. BOOHER

Secretary and Manager of the Ohio Cultivator Co.

"President Stahl says that he expects to go abroad again as soon as business duties will permit. He will go to visit the representatives of the company in Europe. He will visit his agents in London, Copenhagen, Denmark, various cities in Italy and the company's representative at Budapest, Hungary. The visit will be purely for business and not for pleasure. President Stahl said that in time the present plant would probably be extended clear through to Monroe street, and said they might just as well employ 600 or 700 hands as 300, for there was almost an unlimited demand for the product of the factory, and lots of business had been lost this season through inability to fill orders."

FOREIGN TRADE AT HOME

Americans who are accused of indifference towards export trade, and their number is by no means small, may never have thought just why it is that unlike the Germans they are not compelled to go abroad for business, but there certainly is at least one reason why they can view oversea commerce with more or less complacency, if not indifference. A brief study of the United States immigration statistics will shed much light on the subject.

While the Germans are exerting all their energy to induce the citizens of foreign lands to buy their products, thousands of foreigners are flocking into America every week, there to become ready consumers of numberless American products and the creators and builders-up of endless industries and enterprises which in turn create markets for other goods. Thus, while the German has to cross the borders of the fatherland to create a market for his merchandise, unless he is satisfied to confine his sales exclusively to his own countrymen, it may in a sense be said that the foreign trade of the world is in a large measure flowing directly into America.

It is true enough when a European comes to America as an immigrant he immediately becomes an American, so far as trade statistics are concerned, but on the other hand it is just as true that he is a man whose trade is desired and which can then be had within the borders of this country whereas it could previously be had only by going to his native shore.

America's home trade is thus expanding by leaps and bounds every year as it will continue to do as long as prosperity prevails throughout the land, and while the citizens of othe countries will continue to pour into America here to absorb American products and assist in the building up of American industries, just so long will it be possible for the American manufacturer to keep busy without particular attention to the export trade.

It is fortunate for the future of American commerce in general, however, that this view of the situation does not destroy entirely the present interest of the manufacturing community's most progressive, far-sighted representatives in the export trade. The progressive idea that now prevails in most American workshops is that the time for export is all the time, and that the most and best hay can be made in clear weather.—*N. Y. Commercial.*

Japan---Her Government, Politics and Problems

By WILLIAM JENNINGS BRYAN, in *The Commoner.*

The Government of Japan is a constitutional monarchy in which the emperor not only claims to rule by divine right but by right of divine birth. He is described as heaven-born, and according to the accepted history there has been no break in the family line for twenty-five hundred years. Among no people on earth has there ever been more universal respect shown, or implicit obedience yielded, to the reigning family. There never has been a revolt of any consequence against the emperor, although there have been numerous conflicts between the shoguns. For about twelve hundred years, from 670 to 1868, the shoguns were, however, the actual rulers, and while they never questioned the sovereignty of the emperor, they did not allow him to retain much more than the empty title.

The shoguns were military rulers and a number of them were men of great force and executive ability. First, the Fujiwara family controlled the country through the shogunate for nearly four hundred years; then for a century the Taira and Minamoto families alternated in the exercise of power; then came the Hojo family and others of less importance until finally the Tokugawa family became supreme in the shogunate and continued in power for something like three hundred years. The emperor lived at Nara until about 1600, when the capital was moved to Kyoto where it remained until less than forty years ago. Tokyo, on the other hand, was the seat of the shogun power, and there is a very noticeable difference between the two cities. The shoguns fortified their castles and required the feudal lords to keep headquarters in Tokyo. One cannot go through the palace in which the emperor lived permanently without noticing how plain it is as compared with the castle (both at Kyoto) in which the shogun resided for a few days during his annual call upon the emperor. While it may seem strange that the real rulers never attempted to become emperors in name, it only shows their intelligence, for by insisting upon the recognition of the royal family, they were probably more successful in maintaining the real authority than they would have been had they questioned the divine right of the immemorial rulers.

During the early part of the last century there began to be a reaction against the shogun, and when he agreed to the treaties opening the country to foreign intercourse, his action was taken advantage of by the friends of the emperor. When the feudal lords of Choshu attacked the foreign ships at Shimonoseki Strait, the shogun was compelled to pay an indemnity of $3,000,000 and attempted to chastise the Choshu leaders. His forces were defeated and he died soon afterward. The emperor seized upon this event and the influential lords of Choshu and Satsuma encouraged him to abolish the shogunate, which he did in 1868. The new shogun accepted the situation without a struggle and those of his followers who attempted a resistance were soon routed.

Everything in modern Japan dates from 1868, which is called the restoration. While in the restoration the emperor was acknowledged as the sole and absolute ruler in whom all authority was vested, still it was really the beginning of constitutional government, for the emperor voluntarily promised his people a constitution, a promise which was not finally fulfilled until 1889.

The fervor of patriotism that restored to the emperor his original authority wrought wonders in Japan. The feudal lords came forward and voluntarily turned their vast estates over to the emperor and relinquished the authority which they had exercised over their tenants; then they joined with the Samurai (their former retainers) in supporting the emperor in abolishing all social distinctions. From that day to this the country has grown more and more democratic, the reforms working from the upper classes down.

Views of Prominent Structures in San Francisco Before the Earthquake

Distant view of the City Hall, through the Palms. This magnificent municipal building that is said to have been the most attractive from an architectural standpoint of any in the country, and which cost more than seven million dollars, is destroyed.
Courtesy of The Merchants Guide, Philada.

Old City Hall, San Francisco.

This was one of the largest, highest and most prominent structures in the city, but it fell a prey to the devouring flames after having withstood the earthquake shock, and was completely gutted.

Courtesy of The Merchants Guide, Philada.

In 1889 the constitution promised by the

emperor was promulgated. It was prepared largely by Marquis Ito, who visited Germany and modeled the document after the Prussian constitution. The legislative power is vested in a diet consisting of two houses, one resembling the English House of Lords and the other resembling our House of Representatives. The upper house is composed of the princes of the royal blood, marquises (these sit by virtue of their rank) counts, viscounts and barons, selected from among their respective classes, men of erudition or distinguished service appointed by the emperor, and one representative from each perfecture or state selected by the highest taxpayers. The members of the diet, except those who sit by virtue of their rank, receive two thousand yen (one thousand dollars) per year. The members of the House of Representatives are divided among the states in proportion to the number of franchise holders; last year they numbered 323, and were voted for by 757,000 franchise holders. These franchise holders numbered less than 10 per cent. of the men of voting age, there being a property qualification which excludes from suffrage more than nine-tenths of the adult males.

The emperor appoints the governors of the various states, and these need not be selected from the states over which they preside. The emperor has the right to convoke and prorogue the diet and to dissolve the House of Representatives; he also has the right to issue urgency ordinances when the diet is not in session, the same to be submitted for approval to the next session.

The constitution contains a bill of rights. Among other rights the Japanese subjects shall enjoy freedom of religious belief "within limits not prejudicial to peace and order and not antagonistic to their duties as subjects;" and "within the limits of law" they shall enjoy "the liberty of speech, writing, publication, public meeting and association." After the Tokyo riots which followed the announcement of the treaty with Russia an urgency ordinance was issued restraining the press, and certain newspapers were suspended under this ordinance, but it is probable that this urgency ordinance will be vigorously discussed at the coming session of the diet.

The emperor is assisted in the discharge of his executive duties by a prime minister and nine department ministers; besides these, he has the advice of a privy council, composed of elder statesmen of which Marquis Ito is now the president.

Each state has what corresponds to our legislature, and each city has a council; both of these bodies are elective and to the city council is entrusted the selection of the mayor.

They have a judiciary, federal and local, appointed for life, but no jury system. Among the laws is one forbidding aliens to own property, although this is avoided to some extent by long time leases. There is also a law by which a debt descends with the property to the oldest son, even though the debt may exceed the property.

THE CLIFF HOUSE

This superb structure, located at the Golden Gate, known as the Cliff House, has long been an object of interest to tourists, as well as a suburban resort to thousands of residents of San Francisco and vicinity. The earlier reports after the earthquake stated it had been overturned into the sea, but later news says it escaped with unimportant damage

Through the courtesy of Hon. N. W. McIvor, former consul general at Yokohama and now engaged in the practice of international law, I had an opportunity to meet a number of governors and congressmen and found them, as a rule, an intelligent and accomplished body of men, many of them having finished their education abroad. Their most famous minister of finance, Count Matsukata, bore some resemblance to J. Pierpont Morgan.

They have politics in Japan. The promise of a constitution seems to have been given by the emperor before there was any general agitation for it, but as about twenty-one years elapsed between the making of the promise and the realization of the hopes excited by it, there was a period of discussion. As early as 1874 several of the ministers joined in a petition asking for the promulgation of the promised constitution. Their memorial being disregarded they resigned their offices and became the founders of a democratic party. They called themselves liberals, and their efforts resulted in an imperial rescript issued in 1881, fixing 1889 as the date for the beginning of constitutional government. Marquis Ito is now the leader of the liberal party which had 130 members in the House of Representatives in 1904.

In 1882 Count Okuma organized the progressive party which had last year a membership of ninety in the House of Representatives. This is known as the party of the opposition, Marquis Ito's party being the power behind the throne. There is not as much difference between the platforms of these parties as between the platforms of the two leading parties of our country, but of the two Count Okuma's party is the more radical. The count himself is a born leader, and exerts a large influence upon the politics of his country. When premier some years ago he lost a leg by the explosion of a bomb, thrown with murderous intent by a political opponent, but it did not diminish his zeal in the prosecution of reforms. The fact that there were in the last diet 130 who styled themselves independents shows that there is a considerable body to which the opposition party can appeal when the minister makes an unpopular move.

Besides the party organizations there are a number of societies formed for the study of political questions. There are economic associations in a number of the cities composed of the leading business and professional men. I met the members of these societies at Tokyo, Osaka and Nagoya and was impressed with the attention that they are giving to economic problems. They have in Tokyo another organization called the Political Economy Association which deals more directly with matters of government. The society formed by the men who were educated in America, known as the Friends of America (Baron Kaneko is one of the leading members) takes a deep interest in all matters relating to government and political economy.

(Continued on page 14)

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Our advertisers realize the importance of prompt replies to inquiries from abroad and prompt and careful attention in filling orders and making shipments. Time is always a matter of first importance in this day and age, and delays are not countenanced, especially in connection with foreign business.

The matter of help on the farm has been a vexatious question for years in America, and the scarcity of farm labor is in a very large measure responsible for the variety and excellence of our farm implements. Necessity is the mother of invention, and it is only by the employment of modern labor-saving machinery that the American farmer is enabled to cultivate and harvest his crop.

Many of our American manufacturers are so busy supplying the home market that they have never given any attention to the trade in other countries. Our leading manufacturers, however, have been alive to the opportunities offered in foreign markets, and have established regular export departments where all foreign business is carefully looked after. The advertisers in THE EXPORT IMPLEMENT AGE are of this class, and our readers will find them prompt and courteous in their business dealings.

American implement manufacturers are compelled at frequent intervals to enlarge their establishments by erecting additional factory buildings. The demand for implements at home and abroad is so great that the capacity of our factories is taxed to the utmost. During the past few months many of our largest establishments have been working both day and night to keep up with the demand. So many new buildings have been added in the past few years that it may be said that all of our factories are new, up-to-date and modern in every respect. The most improved equipment is installed, and machinery is employed which performs the work of many mechanics.

There are exceptions to all rules, but it may be said that imperfect implements and machinery never go forth from the modern American implement establishment. The skilled mechanics who are employed in the manufacturing of American farm machinery know that they would not be serving their own interests or their employer's interest by allowing imperfect material or workmanship to pass through any department. Each workman, therefore, is an inspector, and the chances of imperfections being overlooked are at a minimum.

SAN FRANCISCO

All the world knows of the terrible disaster which visited San Francisco Wednesday, April 18th. The first and hardest earthquake shock occurred at 5:15 A. M. shattering hundreds of buildings and alarming the citizens. Immediately after the earthquake fire broke out in several places and within three hours the downtown wholsale district was burning fiercely, and most of the buildings in the tenement and manufacturing districts were a prey to the flames. The fact that the principal water mains were broken by the shocks prevented effective work by the fire department, which is rated by insurance men as one of the best in the world. The fire consequently burned in all directions, there being but little wind. Dynamite was used as fast as it could be secured, but not until after a day or two was the system of back-firing and dynamiting buildings carried out on a large enough scale. Th fire after sweeping an area of at least fifteen square miles covering the entire wholesale district, the principal retail districts, the central residence and boarding house district, and the entire foreign quarter, extending over to North Beach, burned itself out in the lumber yards at the end of the week. Immense shipments of vehicles and implements have been going forward from American manufacturers to replace the stock destroyed. The citizens of the stricken city are re-establishing themselves as fast as circumstances will permit, and from the first they have displayed heroic courage and determination under appalling conditions. We are publishing in this issue some pictures of San Francisco which have been loaned to us by the courtesy of the Merchants' Guide, Philadelphia, Pa.

THE ENGLISH LANGUAGE

Consul-General Church Howe, writing from Antwerp, says:

"The fact that nearly one-half of the shipping traffic to and from Antwerp is carried on under the British and American flags has made Antwerp almost an English-speaking port. The authorities are awake to the fact, and are encouraging the study of the English language in all the classes of society. Free night schools for exclusive classes in English, organized by the city authorities, are attended by thousands of pupils, while special attention is paid to the study of English in all the grades of the day schools, public as well as private. The necessity of acquiring a practical knowledge of English is so generally felt that private initiative has seconded the efforts of the educational authorities, and clubs composed of clerks and employees of the business houses, banks, etc., have been formed, known as 'Mutual English Teaching Clubs,' the influence of which is spreading rapidly. The members of these clubs, in their strenuous efforts to master the commercial language of the world, are showing an unusual energy and determination.

"This desire to popularize the English language is not confined to Belgium, but has extended to Germany as well, where recent orders of the Government require the officials and employees of the railroads to learn and speak the English language. Schools of instruction for this purpose have already been established at Munich and Nuremberg by the German Government. There is no denying the fact that the English language is fast becoming at all trade centers in western Europe the international commercial medium."

PRIZES FOR INVENTIONS

The French Government is offering a prize of 20,000 francs for the discovery of a denaturizing agent for alcohol that is superior to the one at present employed. The taste and odor of the denaturizing agent must be such as to render alcohol to which it has been added unpotable, yet the odor must not be so strong and repulsive as to interfere with the use of the denaturized article. Soluble substances leaving deposits on wicks and in fine tubes, such as cooking salt, are not available. The volatility of the denaturizing agent must be substantially the same as that of the alcohol, so it cannot be eliminated by fractional distillation. It must not comprise any element which attacks metals. It must not be poisonous like bichloride of mercury; it must be sufficiently low priced not to hinder the use of the alcohol for industrial and domestic purposes; it must not normally exist in commercial alcohol, and its presence in the alcohol must be easily ascertained.

Another prize of 50,000 francs is offered for the invention of a method of using alcohol for lighting purposes, the same as kerosene is now used.

THE PAN-AMERICAN CONGRESS

The third Pan-American Congress, to be held in Rio de Janeiro in July, promises to be more important and more productive of lasting results than either of the previous meetings of representatives of nations on the American Continent. That the United States is alive to the possibilities of the coming conference is shown by the promised attendance at its sessions of the Secretary of State *for Foreign Affairs* (the italics are ours) of the United States, not as a delegate, high as are the powers and great the responsibilities attached thereto, but in his official capacity. If no other results be accomplished the Congress will solidify the growing intimacy of the American nations and lead to a better understanding and appreciation of the purposes and doctrines held by each.

At the time of writing, twelve countries have signified their intention of being represented: Argentine Republic, Bolivia, Brazil, Chile, Costa Rica, Cuba, Ecuador, Mexico, Panama, Paraguay, United States and Uruguay. Fourteen general topics will be placed before the Congress for discussion; some have been considered by the Montevideo and Mexico meetings, while others will be presented for the first time. The questions to be discussed may be placed in three general groups—political, commercial and sanitary—though considering some of the questions in their broadest aspect it would be justifiable to place them in all three groups.

Of the political questions, the most important to be considered is the Drago or Calvo Doctrine, a principle which is to South America what the Monroe Doctrine is to the United States; it has for its purpose the prevention of the collection of certain contractual debts by force. The discussion will be with the view of securing the acceptance of the principle as an international law, at the coming Hague Peace Conference. A second political question which will be considered, especially with the purpose of securing uniform instructions for the representatives of the American nations at the Hague Conference, is the voluntary arbitration of disputes which may arise between nations. A third political question is that of naturalization in so far as concerns the position of naturalized persons returning to their country of origin.

Topics of a sanitary character include uniform sanitary and quarantine regulations, in which mutual assistance in the prevention of epidemics and the spread of contagious diseases would be the most important features, and the international recognition of professional diplomas.

In its commercial aspect, the Pan-American Congress promises to be productive of influences for good on the trade between the United States and other nations on the American Continent, a trade which shows a healthy development. The commercial topics which have already been proposed and accepted for discussion include the development of more intimate trade relations between the American Republics, involving the establishment of better steamship facilities, founding of a Pan-American bank, the dissemination of statistical and commercial information, and the conclusion of reciprocity treaties; the simplification and uniformity of customs and port regulations; an international arrangement covering the recognition and protection of patents, trade marks and copyrights; the Pan-American railroad project; the codification of international public law and of private, civil, commercial and criminal law and of judicial procedure; and the reorganization of the International Bureau of American Republics on a broader scale of usefulness.

This is a wide range of subjects and the discussions must in large measure be merely preliminary to and pave the way for later meetings of a general or specific nature, yet any conference, even lacking in immediate results, which permits a comprehensive exchange of thought, cannot but be of value, not alone to the participating countries but to the world at large.—*Commercial America.*

WHAT IS THE TOTAL OF THE WORLD'S COMMERCE?

The Department of Commerce and Labor submits a statement that "the world's international commerce will aggregate fully $25,000,000,000 in the year 1906." We are not quite convinced of the accuracy of this statement, says the *Chicago Tribune.* The explanation is made that "by the term 'world's international commerce' is meant the imports plus the exports of all countries" from which reports were available. It seems to us that this method of computation doubles the actual. The total commerce of a given country is the total of imports plus exports. The respective items refer to different commodities, and distinction is made in statistical reports between merchandise imported for consumption and for reshipment.

The report does not give the trade figures of the different nations, but some of them may be quoted for the purpose of illustration. The export trade of some of the leading nations stands as follows, in round figures:

United States	1905	$1,500,000,000
United Kingdom	1905	1,500,000,000
Germany	1904	1,250,000,000
France	1905	950,000,000
Netherlands	1904	800,000,000
British India	1905	500,000,000
Russia	1904	500,000,000
Italy	1904	300,000,000
Belgium	1905	420,000,000
Argentina	1905	320,000,000
Canada	1905	190,000,000
Brazil	1904	190,000,000
Switzerland	1904	170,000,000

The 8,500,000,000 of export sales here represented probably constitute about two-thirds of the world's total, say $12,000,000,000 to $13,000,000,000. Inasmuch as what is sold by all is also bought by all, it seems a duplication of the account to include both import and export figures.

As a theory the grand total of exports will be the same in value as the grand total of imports. As a fact, the figures do not tally, by reason of changes in appraised values at ports of entry. Thus, for the fiscal year 1905 we report our exports to Canada as $140,000,000, while Canada reports her imports from the United States as $166,000,000. But it seems that the total of the world's international commerce is represented either by total of imports or total of exports and not by the addition of both.

AUTOMOBILES IN PERU

U. S. Consul-General Gottschalk, having received a number of inquiries concerning automobiles in Peru, makes the following report from Callao:

One of the most striking evidences of the modernization of the old vice-regal city of Lima is to be found in the presence of automobiles on the streets—the medical man in his runabout making professional calls, the alcalde in his big touring car inspecting streets and police vigilance, the heavy freight autos carrying cargo from Callao, the nearby suburb and port, to the doors of Lima warehouses, and in the afternoon parties of young men heading their cars for the Paseo Colon, where heavy traffic is not permitted.

Automobiles are comparatively few in number as yet in Peru, owing to the scarcity of good roads. Intercommunication between coast cities is very slight, the various towns being separated by stretches of loose sand, which means heavy driving for all vehicles not provided with specially adapted wheels; the roads to the interior over the Andes have been much neglected since the advent of rail transportation a half century ago, and in the cities themselves the streets are usually paved with small flinty cobblestones, which are always near at hand, their use doing away with expensive quarrying. The situation as regards motor cars in Peru therefore is much the same as it was a few years ago in more favored countries, in that the automobile will have to bring with it the good roads.

The first automobiles were imported from America in 1905 by the Lima firm of Elguera Hermanos, the makes being Locomobile, Reo, and Olds. Close upon this followed an order for four more, one of which was sold to the municipality of Lima. Some French machines were then imported by private individuals. Then followed the introduction of three American Winton cars by C. Magella, of Lima, and a Columbia electric-motor car by E. Godoy, manager of the Lima-Callao Electric Tramway. Not long after the manager of the Eten Dock and Railway at Puerto Eten, L. Marquina, ordered another from the United States.

The ministry of public works at Lima is soon to have one for official touring, and Dr. Pardo's inspection of the recent military maneuvers at Infantas from an American-made touring car will lead, I am told, to the Government house being provided with one of our American machines. In the city of Lima particularly, which is gradually being repaved with Belgian block, there should in a few years be a decided increase in the number of cars in use. There is also talk of certain prominent merchants ordering a delivery car or two as an experiment. This diversified use of the motor car at a time so very near its introduction to the Peruvian public promises well for the future of that line of trade here.

Freights on cars imported from the United States are of course high, still they can compete with the rates from Europe. The cars themselves and their legitimate accessories are free of customs duties. Parts are assessed at the rate of $0.0974 United States currency per kilo, figured on 10 per cent. of the gross weight.

JAPAN--IT'S GOVERNMENT, POLITICS AND PROBLEMS

(Continued from page 11)

The leading political question in Japan today, insofar as it affects domestic affairs, is whether the cabinet shall be selected by the emperor regardless of the prevailing sentiment in the house, or be made to conform to the will of the people as expressed through their representatives. At present the emperor's councilors are chosen at his own discretion and the states of Satsuma and Choshu have had a controlling influence in the selection of the emperor's advisors. The democratic sentiment of the country is at this time crystallizing in favor of the demand that the emperor take for his premier the leader of the popular party, as the King of England does. However much this reform may be delayed by circumstances, it is bound to come if Japan is to recognize the right of the people to govern themselves.

Courtesy of The Merchants Guide, Philada.

Grand Hotel   Palace Hotel   Chronicle   Croker Building   Hobart Building

IN THE HEART OF THE BUSY BUSINESS DISTRICT OF SAN FRANCISCO

This busy center of the city, in which can be seen Banks, Hotels, Offices, and modern business buildings, is a scene of desolation.

In the cities, sanitation furnishes a most difficult problem. At present there is little sewage, although there is a pressing need for it.

In the industrial development of Japan the people must meet the problem of child labor and the length of the working day. Women now work twelve hours in the factory, and one cannot see them and the children at toil without asking whether Japan can afford to impair the strength of the next generation for any advantage which may be derived from such long hours and such youthful labor. This subject is likely to be brought before the next session of the diet.

In some reforms Japan has moved more rapidly than the United States. Wherever she has waterworks in her cities, they are owned and operated by the municipalities. She also has a telegraph system and a telephone system operated by the national government. Telegrams are sent at the same rates to all parts of the empire, and the service is satisfactory.

The telephone service is not so good, for while it is all right as far as it goes, the system is not extended as rapidly as the demand requires. In Tokyo, for instance, those who want to install telephones have to wait until someone discontinues his 'phone or is willing to sell it, and a bonus is often demanded. If the local telephones were owned by the city and only the interurban lines managed by the imperial government, the service would respond more quickly to the needs of the community.

The Japanese Government also owns and operates a part of the railroad system, and in doing so employs nothing but native help. I traveled on both the government and private lines, and could not see that they differed materially so far as efficiency was concerned.

The first-class fare is about four cents per mile (in our money), the second-class about two cents and the third-class (nearly all the travel is third-class) about one cent. A reduction of 20 per cent. is made on return tickets, a reduction of from 20 to 30 per cent. on commutation tickets, and a reduction of from 45 to 50 or 80 per cent. on season tickets for students. This reduction to students might be imitated to advantage in our country. The Government road is all, or nearly all, double track and has the latest safeguards for the protection of passengers at depots. The Japanese are much given to meeting friends when they arrive and escorting them to the train when they leave, and this custom has led to the sale of platform tickets for one cent (in our money.)

Japan has two educational problems: First, the increase in the percentage of those going from the primary to the middle schools, and second, the cultivation of an ideal which will connect a respect for manual labor with intellectual advancement. To-day a large majority of her people work with their hands and at labor which forbids the wearing of good clothes. It is probable that the education of the masses will show itself to some extent in improved methods and in the more extensive use of animals and machinery, but there must remain a large amount of work which requires daily contact with the soil. The rice crop grows in the mud and cannot be harvested by machinery; the fields, too, are so small that they cannot well be cultivated with the aid of animals. The farmers' boys and girls are now going to school and gradually adopting the European dress. Will they be content to return to the paddy fields when they have finished their education? Some of the young men pull 'rikishas in the daytime in order to earn money to attend school at night; will their learning make them unwilling to do hand work? Or will they substitute the cab for the 'rikisha?

Japan faces the educational problem that confronts the civilized world, viz., how to put behind a trained mind an ideal which will make the educated citizen anxious to do service rather than to be waited upon. Tolstoy's solution of the problem is "bread labor," that is physical toil sufficient to produce what one eats. This he believes will teach respect for labor, and by dignifying it unite all parts of society in sympathetic co-operation. Has any better solution been proposed?

With a broader educational foundation Japan will find it necessary to extend the suffrage. At present the right to vote is determined by a strict property qualification, but there is already an urgent demand for the reduction of the tax qualification, and it will not be long before a large addition will be made to the voting population.

The most serious national problem with which Japan has to deal is that imposed upon her by the attempt to extend the sphere of her political influence to Formosa on the southwest and Korea on the northwest. The people of Formosa do not welcome japanese sovereignty and an army of some six or seven thousand is kept on that island to support Japanese authority.

But Korea presents a still more delicate and perplexing situation. For more than a thousand years a feud existed between Japan and Korea, and two attempts have been made by the former to invade the latter, the last about three hundred years ago. At that time a number of captives were carried back to Kogoshima, where they, as before mentioned, introduced the art of making what has since been known as Satsuma ware. The fact that the descendants of these captives lived in a colony by themselves for three centuries without intermarrying with the Japanese is sufficient evidence of the feeling entertained toward them by their captors.

To aggravate the matter Japan has been engaged in two wars, first with China and then with Russia, over Korea, and it was also the cause of one civil war in Japan. Having driven China from Korea ten years ago and now having driven Russia out, she is undertaking to exercise a protectorate over the country. When it is remembered that Korea is separated from both Manchuria and Siberia by an imaginary line and that the Koreans themselves regard the Japanese as intruders, some estimate can be formed of Japan's task. In a future article on Korea I shall speak on this subject more at length, but the matter is referred to here because the experiment is as dangerous to Japan as it is to Korea.

Will Japan be able to accomplish what other nations have failed to do, viz., exercise a colonial power without abusing it and without impoverishing herself?

EXPORT IMPLEMENT AGE

POUR LA CIRCULATION À L'ÉTRANGER EXCLUSIVEMENT.

Journal indépendant exclusivement consacré aux intérêts du commerce d'exportation des machines agricoles, pompes, moulins à vent, outils de fermes, fournitures pour crèmeries et articles spéciaux de quincaillerie.

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WARE BROS. COMPANY
PUBLISHERS
1010 Arch Street, Philadelphia, Pa., U. S. A.

La même maison public: "The Implement Age," "The American Fertilizer," "The Carriage Monthly" et "The Vehicle Dealer."

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Dans le Répertoire d'adresses à l'usage des cheteurs, dans la première partie de ce livre nous donnons les renseignements en français; nous avons recours à ce moyen afin de faciliter la correspondance avec les maisons qui font insérer des annonces dans ce journal.

La Marseilles Manufacturing Company est reconnue, depuis des années, comme une des plus progressives maisons de machines agricoles. Elle a entrepris le commerce d'exportation il y a plusieurs années, et ses produits ont reçu le meilleur accueil partout où ils ont été introduits. Elle possède de très grandes facilités de construction et est prête à exécuter avec soin et promptitude les ordres qui lui proviennent de l'étranger. Toute correspondance, dans toute langue, sera très favorablement accueillie. S'adresser à la Marseilles Manufacturing Company, Marseilles, Illinois (États-Unis d'Amérique).

Depuis des années la Flint and Walling Manufacturing Company, avec bureaux au No. 96 Wallace street, New York, N. Y. (États-Unis d'Amérique), exporte des moulins à vent, des pylônes, des réservoirs, des pompes, etc. Nul manufacturier de ce pays n'a une plus haute réputation que la Flint & Walling Manufacturing Co.. Ses produits sont, sous, tous les rapports, de première qualité et elle les exporte en quantités considérables. Elle publie de petits livres en anglais, en allemand, en français et en espagnol, qui donnent tous les renseignements désirables sur ses moulins à vent "Star," construits pour des travaux lourds, en réalité pour toutes sortes de travaux. Les personnes qui désireraient correspondre avec la compagnie sont priées de s'adresser à la Flint & Walling Manufacturing Co., 96 Wallace street, New York, (États-Unis d'Amérique).

Limite de la parole téléphonique

M. John Ganey, le nouveau président de l'Institution of Civil Engineers, faisait remarquer dans un discours récent qu'il n'est guère possible qu'il y ait de concurrence sérieuse entre la téléphonie et la télégraphie après qu'une certaine distance critique avait été atteinte. On a donné beaucoup d'attention au problème suivant: Quelles sont les limites extrêmes de la parole au point de vue commercial? Et si l'on prend tous les faits en considération, et que l'on laisse, pour plus de sureté, une bonne marge, on peut dire que la distance limite de la parole effective sur le câble téléphonique anglais ordinaire est de 42 à 46 milles. M. Ganey est d'avis que la télégraphie sans fil ne saurait supplanter les moyens actuels de communication intérieure ou même leur faire une concurrence sérieuse. D'après M. Ganey le problème des câbles sous-marins pour les téléphones de longue distance, est encore à résoudre.

Notre Président

Le président Théodore Roosevelt n'a pas eu à surmonter les obstacles de la pauvreté, mais il en a rencontré de pires. Enfant, il souffrit de la maladie la plus persistante, la plus tenace, la plus accablante, de l'asthme. Mais il résolut de la vaincre, et il y réussit. Selon toute probabilité, la bataille qu'il livra à la maladie fut la plus acharnée de toutes celles qu'il a livrées, et quand la victoire fut complète, il s'aperçut qu'il avait non seulement réussi à surmonter la maladie, mais qu'il avait de plus acquis un extraordinaire fonds de santé et d'énergie qui lui fut fort utile dans la suite. Les expériences par lesquelles il passa lui servirent plus tard dans ses livres, et il est évident qu'il ne considérait d'abord ses travaux politiques que comme secondaires et que ses entreprises littéraires occupaient le premier plan. Causant un jour avec un ami dans les premières années de la dernière décade du siècle qui vient de prendre fin, il faisait cette remarque: "En 1899 ? mais, cette année-là je serai un homme de lettres d'âge moyen." Il croyait alors ce qu'il disait. Toutefois, avant la fin de cette dernière decade du dix-neuvième siècle, il avait bataillé dans plusieurs grandes campagnes politiques, il était devenu sous-ministre de la marine, avait pris du service dans la guerre hispano-américaine, avait été élu gouverneur de l'état de New York et vice-président des États-Unis. Puis, lorsque le président McKinley tomba sous la main d'un assassin, Theodore Roosevelt lui succéda comme président. De sorte que, s'il fut un homme de lettres d'âge moyen, il ne contribua pas peu non plus à façonner l'histoire politique de ces dernières années.

Brouettes américaines à l'étranger

Il y a quelques années la brouette était un instrument assez grossier, généralement construit à la maison, à moins qu'il ne fût fait à la main par le charron de l'endroit. On ne supposait guère alors qu'il y'eût un jour de grandes manufactures de brouettes, employant plussieurs centaines d'ouvriers et consommant annuellement plusieurs millions de pieds de bois et des centaines de tonnes d'acier et de fer; on n'aurait jamais imaginé que les brouettes pussent devenir le très important article de commerce international qu'elles sont aujourd'hui.

La Lansing Wheelbarrow Company, de Lansing, Mich., (Etats-Unis d'Amérique) possède 12,000 acres de terrains boisés où poussent le chêne, l'ormeau, le noyer d'Amérique et d'autres bois durs, précieux pour cette industrie.

Elle possède également une vaste scierie mécanique, marchant nuit et jour et débitant 50,000 pieds de bois par journée de travail. Elle a bâti autour de ses usines un véritable village habité par les ouvriers qu'elle occupe.

C'est à cette fabrique que se prépare la plus grande partie des pièces de bois de ses brouettes; les pièces de fer et d'acier proviennent des Lansing Works qui ont été transformés, dans une large mesure, en une manufacture de brouettes d'acier de wagonnets d'acier et autres articles d'acier à l'usage des entrepreneurs.

Les produits de cette compagnie sont aujourd'hui employés par le gouvernement des Etats-Unis pour le percement du Canal de Panama, on les emploie pour la construction des voies ferrées dans la République Argentine, dans les travaux des mines de l'Afrique du Sud et du Mexique, aussi bien que dans les jardins des familles royales d'Angleterre et de plusieurs autres pays étrangers; ils s'adaptent donc aux conditions les plus variées. La compagnie, en effet, construit de nombreux modèles

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de brouettes de bois et d'acier, de wagonnets de magasins et d'entrepôts, de chariots de fabriques de dessins spéciaux, selon les travaux

JAPAN--IT'S GOVERNMENT, POLITICS AND PROBLEMS

(Continued from page 11)

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Japan has two educational problems: First, the increase in the percentage of those going from the primary to the middle schools, and second, the cultivation of an ideal which will connect a respect for manual labor with intellectual advancement. To-day a large majority of her people work with their hands and at labor which forbids the wearing of good clothes. It is probable that the education of the masses will show itself to some extent in improved methods and in the more extensive use of animals and machinery, but there must remain a large amount of work which requires daily contact with the soil. The rice crop grows in the mud and cannot be harvested by machinery; the fields, too, are so small that they cannot well be cultivated with the aid of animals. The farmers' boys and girls are now going to school and gradually adopting the European dress. Will they be content to return to the paddy fields when they have finished their education? Some of the young men pull 'rikishas in the daytime in order to earn money to attend school at night; will their learning make them unwilling to do hand work? Or will they substitute the cab for the 'rikisha?

Japan faces the educational problem that confronts the civilized world, viz., how to put behind a trained mind an ideal which will make the educated citizen anxious to do service rather than to be waited upon. Tolstoy's solution of the problem is "bread labor," that is physical toil sufficient to produce what one eats. This he believes will teach respect for labor, and by dignifying it unite all parts of society in sympathetic co-operation. Has any better solution been proposed?

With a broader educational foundation Japan will find it necessary to extend the suffrage. At present the right to vote is determined by a strict property qualification, but there is already an urgent demand for the reduction of the tax qualification, and it will not be long before a large addition will be made to the voting population.

The most serious national problem with which Japan has to deal is that imposed upon her by the attempt to extend the sphere of her political influence to Formosa on the southwest and Korea on the northwest. The people of Formosa do not welcome Japanese sovereignty and an army of some six or seven thousand is kept on that island to support Japanese authority.

But Korea presents a still more delicate and perplexing situation. For more than a thousand years a feud existed between Japan and Korea, and two attempts have been made by the former to invade the latter, the last about three hundred years ago. At that time a number of captives were carried back to Kogoshima, where they, as before mentioned, introduced the art of making what has since been known as Satsuma ware. The fact that the descendants of these captives lived in a colony by themselves for three centuries without intermarrying with the Japanese is sufficient evidence of the feeling entertained toward them by their captors.

To aggravate the matter Japan has been engaged in two wars, first with China and then with Russia, over Korea, and it was also the cause of one civil war in Japan. Having driven China from Korea ten years ago and now having driven Russia out, she is undertaking to exercise a protectorate over the country. When it is remembered that Korea is separated from both Manchuria and Siberia by an imaginary line and that the Koreans themselves regard the Japanese as intruders, some estimate can be formed of Japan's task. In a future article on Korea I shall speak on this subject more at length, but the matter is referred to here because the experiment is as dangerous to Japan as it is to Korea.

Will Japan be able to accomplish what other nations have failed to do, viz., exercise a colonial power without abusing it and without impoverishing herself?

Courtesy of The Merchants Guide, Philada.

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Dans le Répertoire d'adresses à l'usage des cheteurs, dans la première partie de ce livre nous donnons les renseignements en français; nous avons recours à ce moyen afin de faciliter la correspondance avec les maisons qui font insérer des annonces dans ce journal.

La Marseilles Manufacturing Company est reconnue, depuis des années, comme une des plus progressives maisons de machines agricoles. Elle a entrepris le commerce d'exportation il y a plusieurs années, et ses produits ont reçu le meilleur accueil partout où ils ont été introduits. Elle possède de très grandes facilités de construction et est prête à exécuter avec soin et promptitude les ordres qui lui proviennent de l'étranger. Toute correspondance, dans toute langue, sera très favorablement accueillie. S'adresser à la Marseilles Manufacturing Company, Marseilles, Illinois (États-Unis d'Amérique).

Depuis des années la Flint and Walling Manufacturing Company, avec bureaux au No. 96 Wallace street, New York, N. Y. (États-Unis d'Amérique), exporte des moulins à vent, des pylônes, des réservoirs, des pompes, etc. Nul manufacturier de ce pays n'a une plus haute réputation que la Flint & Walling Manufacturing Co.. Ses produits sont, sous, tous les rapports, de première qualité et elle les exporte en quantités considérables. Elle publie de petits livres en anglais, en allemand, en français et en espagnol, qui donnent tous les renseignements désirables sur ses moulins à vent "Star," construits pour des travaux lourds, en réalité pour toutes sortes de travaux. Les personnes qui désireraient correspondre avec la compagnie sont priées de s'adresser à la Flint & Walling Manufacturing Co., 96 Wallace street, New York, (États-Unis d'Amérique).

Limite de la parole téléphonique

M. John Ganey, le nouveau président de l'Institution of Civil Engineers, faisait remarquer dans un discours récent qu'il n'est guère possible qu'il y ait de concurrence sérieuse entre la téléphonie et la télégraphie après qu'une certaine distance critique avait été atteinte. On a donné beaucoup d'attention au problème suivant: Quelles sont les limites extrêmes de la parole au point de vue commercial? Et si l'on prend tous les faits en considération, et que l'on laisse, pour plus de surété, une bonne marge, on peut dire que la distance limite de la parole effective sur le câble téléphonique anglais ordinaire est de 42 à 46 milles. M. Ganey est d'avis que la télégraphie sans fil ne saurait supplanter les moyens actuels de communication intérieure ou même leur faire une concurrence sérieuse. D'après M. Ganey le problème des câbles sous-marins pour les téléphones de longue distance, est encore à résondre.

Notre Président

Le président Théodore Roosevelt n'a pas eu à surmonter les obstacles de la pauvreté, mais il en a rencontré de pires. Enfant, il souffrit de la maladie la plus persistante, la plus tenace, la plus accablante, de l'asthme. Mais il résolut de la vaincre, et il y réussit. Selon toute probabilité, la bataille qu'il livra à la maladie fut la plus acharnée de toutes celles qu'il a livrées, et quand la victoire fut complète, il s'aperçut qu'il avait non seulement réussi à surmonter la maladie, mais qu'il avait de plus acquis un extraordinaire fonds de santé et d'énergie qui lui fut fort utile dans la suite. Les expériences par lesquelles il passa lui servirent plus tard dans ses livres, et il est évident qu'il ne considérait d'abord ses travaux politiques que comme secondaires et que ses entreprises littéraires occupaient le premier plan. Causant un jour avec un ami dans les premières années de la dernière décade du siècle qui vient de prendre fin, il faisait cette remarque: "En 1899 ? mais, cette année-là je serai un homme de lettres d'âge moyen." Il croyait alors ce qu'il disait. Toutefois, avant la fin de cette dernière decade du dix-neuvième siècle, il avait bataillé dans plusieurs grandes campagnes politiques, il était devenu sous-ministre de la marine, avait pris du service dans la guerre hispano-américaine, avait été élu gouverneur de l'état de New York et vice-président des États-Unis. Puis, lorsque le président McKinley tomba sous la main d'un assassin, Theodore Roosevelt lui succéda comme président. De sorte que, s'il fut un homme de lettres d'âge moyen, il ne contribua pas peu non plus à façonner l'histoire politique de ces dernières années.

Brouettes américaines à l'étranger

Il y a quelques annees la brouette était un instrument assez grossier, généralement construit à la maison, à moins qu'il ne fût fait à la main par le charron de l'endroit. On ne supposait guère alors qu'il y'eût un jour de grandes manufactures de brouettes, employant plussieurs centaines d'ouvriers et consommant annuellement plusieurs millions de pieds de bois et des centaines de tonnes d'acier et de fer; on n'aurait jamais imaginé que les brouettes pussent devenir le très important article de commerce international qu'elles sont aujourd'hui.

La Lansing Wheelbarrow Company, de Lansing, Mich., (États-Unis d'Amérique) possède 12,000 acres de terrains boisés où poussent le chêne, l'ormeau, le noyer d'Amérique et d'autres bois durs, précieux pour cette industrie.

Elle possède également une vaste scierie mécanique, marchant nuit et jour et débitant 50,000 pieds de bois par journée de travail. Elle a bâti autour de ses usines un véritable village habité par les ouvriers qu'elle occupe.

C'est à cette fabrique que se prépare la plus grande partie des pièces de bois de ses brouettes; les pièces de fer et d'acier proviennent des Lansing Works qui ont été transformés, dans une large mesure, en une manufacture de brouettes d'acier de wagonnets d'acier et autres articles d'acier à l'usage des entrepreneurs.

Les produits de cette compagnie sont aujourd'hui employés par le gouvernement des Etats-Unis pour le percement du Canal de Panama, on les emploie pour la construction des voies ferrées dans la République Argentine, dans les travaux des mines de l'Afrique du Sud et du Mexique, aussi bien que dans les jardins des familles royales d'Angleterre et de plusieurs autres pays étrangers: ils s'adaptent donc aux conditions les plus variées. La compagnie, en effet, construit de nombreux modèles pagnie, en effet, construit de nombreux models de brouettes de bois et d'acier, de wagonnets de magasins et d'entrepôts, de chariots de fabriques de dessins spéciaux, selon les travaux

INTENTIONAL SECOND EXPOSURE

auxquels ils sont destinés, de wagonnets et d'outils d'entrepreneurs.

Son catalogue No. 8, élégante brochure de 160 pages, qui sort de presse, sera envoyé franco à tous les commerçants qui voudront bien le demander aux bureaux d'exportation de la compagnie: B 21 Produce Exchange, New York.

L'avenir de la Chine

La commission impériale qui a quitté la Chine pour faire une longue tournée en Amérique et en Europe, a pour but ostensible le collectionnement systématique de renseignements sur les méthodes politiques, financières et administratives des nations de l'Occident; son but réel, cependant, est sans aucun doute de donner a ces nations une preuve de la sincérité et de l'efficacité des réformes qui se font en Chine et de gagner ainsi leurs sympathies pour l'abolition de l'"extra-territorialité." L'histoire se répète, et ceux qui se rappellent le but et les résultats de la mission Burlinghame (1867) suivront avec intérêt l'expérience de l'heure actuelle. Au point de vue du pittoresque, les commissaires et leurs suites ne peuvent manquer d'attirer l'attention; leur intelligence et leur culture donneront très probablement au monde une haute idée (mais très erronée) du système qui produit de pareils résultats. La plupart des quatre-vingts attachés et secrétaires qui accompagnent Tuan fang (gouverneur de Hu nan), le duc Tsai, et leurs collègues, sont des hommes de choix, capables de démontrer d'une manière satisfaisante à des auditoires polis de Washington et de Londres que leur pays est parfaitement en état d'entrer sur un pied d'égalité dans la famille des nations—des hommes, en un mot, qui comprennent les exigences de la politique internationale et l'emploi avisé de la presse. Assurément l'Europe sera favorablement impressionnée, et les trimouthes de Wu-Ting fang y seront plus hautement criés sur les toits qu'aux Etats-Unis. Mais la Chine, où les commissaires imperiaux reviendront après leur tournée, sera tout aussi fermée aux poursuites de la civilisation qu'à l'époque où elle envoya la mission Burlinghame dans un but indentique il y a quarante ans. Elle a aboli la torture par édit, mais Wu Tingfang lui même, qui vit la nécessité d'une pareille concession aux humanitaires de l'Occident, tient qu'elle est permise dans les cas de vol et de meurtre, "où la preuve est concluante et l'accusé récalcitrant." et l'édit ne servira sans doute à personne si ce n'est aux commissaires en voyage. La Chine a reconnu avec gratitude l'aide précieuse du professeur Jenks, qui en quittant Pékin fut assuré que ses suggestions pour l'établissement d'un étalon d'or seraient adoptées, et elle a rempli la clause monétaire du traité MacKay en avilissant la monnaie de cuivre du pays tout en laissant sans remède pratique la confusion des échanges de l'argent. Elle a proclamé sa résolution de développer ses propres chemins de fer et ses mines, et des bureaux provinciaux irrémédiablement corrompus, comme d'habitude, ont surgi dans tous les coins du pays, mais on peut se faire une idée assez exacte de leurs intentions par celles du gouverneur général de Szechuen qui, ayant obtenu 60,000 livres sterling de la noblesse patriotique de cette province, annonce que l'argent sera consacré à l'établissement d'un collège destiné à former des ingénieurs. Quand ceux-ci seront formés, on pourra s'occuper comme il convient de la construction des chemins de fer. Elle est prête à abolir le "likin," mais avant que le traité MacKay fût ratifié elle avait établi un ingénieux système de douanes indigènes propres à harceler le commerçant aussi effectivement que jamais. Elle a établi des écoles où s'enseignent les sciences de l'occident, et un bureau d'économie politique comparée, mais encore qu'il y ait nombre de patriotes sincères qui visent à améliorer l'éducation et que des progrès reels aient été réalisés dans certains districts, le gouvernement ne reconnait d'autre valeur que celle de l'argent. Il faudra des hommes plus sages que les etudiants de la jeune Chine, beaucoup mieux disposés que les réformateurs de Canton, disciples de Kang Yu-wei, pour mettre le pays sur le chemin des lumières politiques et morales: sans changement sensible dans le système de gouvernement, le progrès est impossible.

Commissaires imperiaux de paix et édits. Le but du gouvernement chinois aujourd'hui, est exactement ce qu'il était quand la Chine rencontra pour la première fois l'avant-garde du commerce militant, et je ne saurais mieux définir ce but qu'en répétant les paroles d'un homme qui écrivit sur la mission Burlinghame en 1869, M. Ross Browne, ex-ambassadeur des Etats-Unis à Pékin. Critiquant sévèrement l'appel de M. Hart (aujourd'hui Sir Robert) en faveur de la patience et de la non-intervention dans les affaires de la Chine plus que lente a tenir ses promesses, il disait:

"Le but, par conséquent, était de prévenir tout progrès incompatible avec l'isolement de la Chine. . . . Il n'y a rien dans l'histoire de la Chine depuis le commencement de ses relations avec l'étranger, qui puisse faire croire que les souverains du Céleste empire eussent la moindre idée de frayer avec les autres nations de la façon que prévoit le droit international. Ce qu'ils désiraient réellement, c'était du temps—du temps pour recommencer en grand ce qu'ils avaient essayé en fait de préparation pour repousser l'intrusion étrangère à Canton de 1842 à 1857, et à Taku de 1858 a 1859; du temps pour établir des arsenaux, construire des canonnières, empoisonner l'esprit des gens dans toutes les provinces, et finalement, quand ils ne pourraient plus repousser l'exécution des traités, frapper un grand coup dans un dernier effort de chasser l'étranger du pays."

S'il était possible, soit par pression extérieure, soit par la volonté des gens, de réformer radicalement le système chinois de gouvernement, on pourrait envisager sans pessimisme l'avenir commercial et social de l'empire, car les gens sont bien disposés (à moins pourtant qu'on n'attaque leurs coutumes religieuses ou sociales), et le pays offre de vastes ressources pour l'éducation et l'entreprise commerciale. Dans l'état actuel des choses et bien qu'à certain point de vue philosophique on peut mettre en question le droit qu'ont les Européens d'imposer aux Chinois leur fâcheuse présence et admettre le droit qu'ont ces derniers de se protéger par tous les moyens possibles contre cette déplaisante intrusion, il semble inévitable qu'il faille tôt ou tard faire executer les traités *vi et armis*, ou renoncer à la plupart des droits qu'ils confèrent.—*London Times*.

Herses "Standard"

La Standard Harrow Company, d'Utica, N. Y. (États-Unis d'Amérique) enverra son catalogue sur demande à tous nos lecteurs. Le livre mentionne tous les produits "Standard," y compris les herses à dents flexibles en une ou en deux pièces, des herses à dents flexibles et à disques de tous modèles et de toutes grandeurs, des cultivateurs, des arracheuses de pommes de terre, des pulvérisateurs pour pommes de terre, etc. Ce catalogue interessera tous ceux qui ne l'ont pas vu, car les produits "Standard" jouissent d'une haute réputation dans tous les principaux pays agricoles du monde.

Moyens de transports du monde entier

Le développement des moyens de transport qui placent aujourd'hui le consommateur de l'intérieur d'un continent en communication directe avec le consommateur de l'intérieur d'un autre continent, est le produit de comparativement peu d'années. Il n'y a guère que l'espace d'une vie d'homme que le monde ne possédait pas un mille de chemin de fer, que pas un seul bateau à vapeur ne franchissait l'océan. Aujourd'hui le monde a sur terre 550,000 milles de voies ferrées, et sur l'océan 6 millions de tonnes de puissance de transport à voiles et 18 millions de tonnes de puissance de transport à vapeur. Au commencement du siècle dernier les navires de transport à voiles formaient un total de 4 millions de tonnes; les navires à vapeur n'existaient pas, non plus que les chemins de fer. Vers le milieu du sicle les navires marchands à voiles enbrassaient un total de plus de 11 millions de tonnes, les navires à vapeur comptaient moins d'un million de tonnes et les chemins de fer n'avaient guère qu'une etendue de 24,000 milles. En 1880 les navires à voiles avaient atteint 14,500,000 tonnes, les navires à vapeur environ 6 millions de tonnes et les chemins de fer comptaient 225,000 milles. A partir de ce moment les navires à vapeur ont commencé à prendre rapidement la place des navires à voiles qui, en 1905, ne comptaient que 6 millions de tonnes, tandis que le tonnage des navires à vapeur s'élevait à 18,500,000 tonnes; quant aux chemins de fer, ils occupaient une longueur de 550,000 milles, dont 217,000 milles, soit les deux cinquièmes du total, se trouvent aux Etats-Unis.

Les statistiques que vient de publier le Ministère du commerce et du travail indiquent que les États-Unis occupent la première place tant au point de vue de l'étendue en milles des chemins de fer que de la rapidité de leur développement. De la longueur totale des voies ferrées du monde entier, embrassant 534,000 milles en 1904, 211,074 milles se trouvaient aux Etats-Unis, 35,323 milles dans la Russie d'Europe, 32,967 milles en Allemagne, 28,102 milles en France 26,950 milles dans les Indes, 24,120 milles en Autriche-Hongrie, 22,634 milles dans le Royaume Uni, 19,611 milles au Canada, 15,560 milles en Afrique, 14,113 milles en Australie, 15,559 milles dans la République Argentine, 10,356 milles au Mexique, 9,961 milles en Italie, 9,368 milles au Brésil, 7,697 milles en Suède, 7,322 milles dans le Sibérie, la Mandchourie et autres possessions asiatiques de la Russie, 4,495 milles au Japon, et 1,176 milles en Chine. Ce n'est qu'en 1835 que le chiffre des chemins de fer en exploitation aux Etats-Unis atteignit 1,000 milles; il s'élevait cette année-là à 1,098 milles; en 1850, ce chiffre était devenu 9,021 milles; en 1860, 30,626 milles, en 1865, 35,085 milles. De 1865 à 1875 la longueur des voies ferrées fit plus que de doubler: en 1875 elle atteignait, en effet, 74,096 milles; la longueur totale pour 1885 était de 128,320 milles, pour 1895, de 181,115 milles, pour 1900, de 194,262 milles, et pour 1905, de 217,328 milles; leur prix de revient pour 1905 est évalué par le Manuel de Poor à la somme énorme de 11 milliards 660 millions de dollars, sur 37 milliards de dollars qui représentent le prix de revient des chemins de fer du monde entier.

Le tonnage des bateaux à voiles et a vapeur du monde entier, à ne compter que les bateaux d'un tonnage supérieur à 100 tonnes, est evalué par le Lloyd's Register à environ 6 millions de tonnes pour les navires à voiles et 18,500,000 tonnes pour les navires à vapeur. De ce total de 24,500,000 tonnes, 11 millions de tonnes, soit près de la moitié, reviennent au Royaume Uni et à ses colonies; 3,250,000 tonnes, aux Etats-Unis, 1,333,000 tonnes à la Norvège, 1,200,000 tonnes à la France, et enfin la Russie, la Suède, l'Espagne, le Japon et les Pays-Bas possèdent chacun 500,000 tonnes environ, ces pays étant nommés dans leur ordre de grandeur descendante.

Le développement rapide des chemins de fer aux Etats-Unis forme un contraste piquant avec le developpement de notre marine marchande, qui est plutôt lent. Le tonnage des vaisseaux engagés dans le commerce extérieur des Etats-Unis s'élevait en 1855, à 2,348,358 tonnes, en 1875, à 1,515,598 tonnes, en 1895, à 822,347 tonnes, et en 1905, à 943,750 tonnes. Le tonnage des vaisseaux engagés dans le commerce côtier des Etats-Unis s'élevait à 2,543,255 tonnes en 1855; à 3,219,698 tonnes en 1875, à 3,728,714 tonnes en 1895, et à 5,441,688 tonnes en 1905. Le tonnage total de la marine marchande des Etats-Unis y compris tous les vaisseaux, soit qu'ils s'occupent de commerce extérieur, de commerce côtier, ou soient consacrés à la pêche de la baleine, de la morue ou des maquereaux, ce tonnage total, de 5,212,001 tonnes en 1855, n'atteignait que 6,456,543 tonnes en 1905.

Les statistiques montrent que les frais de transport des marchandises ont diminué, tant sur terre que sur mer. Pour le blé, les frais de transport, par boisseau, de Chicago à New York, ont diminué de la façon suivante: par lac et canal, de 20.6 cents en 1865, ils étaient tombés à 4.7 cents en 1905; par lac et chemins de fer, de 29 cents en 1868, date la plus ancienne que l'on puisse se procurer, ils étaient tombés à 5 cents en 1905; par chemin de fer seul, de 46 cents en 1866, à 11 cents en 1905. Pour le même produit, les frais de transport entre New York et Liverpool, bien que sujets à de grandes fluctuations, ont également diminué, surtout dans ces dernières années. En 1873, le transport d'un boisseau de blé, de New York à Liverpool coûtait 10 9-16 cents; en 1875, 8 7-16 cents; en 1885, 3 3-16 cents; en 1895, 2 9-16 cents, et en 1905, 1 1-8 cents.

Pendant la dernière année dont on puisse se procurer les statistiques, les chemins de fer des Etats-Unis ont transporté 718,654,951 voyageurs et 1 milliard 300 millions de tonnes de marchandises, alors qu'en 1885 ils transportaient 351,427,688 voyageurs et 437 millions de tonnes de marchandises.

On trouve une preuve de la relation étroite qui existe entre les facilites de transport et le commerce, dans le fait qu'en 1800, alors qu'il n'y avait ni chemins de fer ni bateaux à vapeur et seulement une marine marchande de 4 millions de tonnes, le commerce du monde entier était évalué à un milliard et demi de dollars, tandis qu'aujourd'hui, aidé par près de 550,000 milles de chemins de fer et par le nombre de bateaux à vapeur et à voiles mentionné ci-dessus, ce commerce approche de vingt-deux milliards et demi. Ainsi, grâce aux moyens de transport recents du siècle dernier, qui ont developpé l'interieur des continents et ont permis la circulation de maints produits qui, jadis, n'auraient pu supporter les frais de transport, le commerce international du monde est aujourd'hui quinze fois plus élevé qu'au commencement du siècle dernier; et cependant la population du globe n'est que deux fois et demi plus nombreuse qu'à cette époque-là; de sorte que le commerce de la population du monde entier, envisagé dans son ensemble, qui ne s'élevait qu'à moins de 2 dollars et demi par tête en 1800, s'élève aujourd'hui à près de 14 dollars par tête.

Les outils et machines agricoles américains sont soigneusement inspectés avant de sortir de la fabrique.

Machine qui prophétise

Une machine qui prophétise est un engin employé par les bureaux chargés de l'examen des cotes à Washington, D. C., et qui peut prédire et prédit en réalité l'heure des marées hautes et basses pour une localité donnée, et fait ces prédictions une année à l'avance. Ses prédictions peuvent ne pas se borner à une année mais c'est généralement là le maximum de travail qu'on exige de cette machine. Elle est d'une délicatesse difficile à apprécier. Pour faire ces prédictions des marées, qui sont publiées chaque année sous forme d'un gros volume de tableaux, la machine est d'abord mise en place et réglée, et en suite manœuvrée à la main. Comme on peut l'imaginer, le réglage de la machine requiert beaucoup de soin et d'intelligence. La prédiction des marées exige que dix-neuf facteurs différents soient déterminés. Or chaque facteur modifie tous les autres. La machine est donc construite de telle manière qu'un changement dans un facteur produit son effet sur tous les autres. On peut jusqu'à un certain point comprendre comment cela se fait si l'on remarque qu'il y a dix-neuf cadrans avec index à régler. Chaque index est sur une poulie montée excentriquement sur son arbre, et sur cette poulie passe une chaîne qui va d'une poulie à l'autre. Il est évident que si l'excentricité d'une poulie est altérée, elle altère proportionnellement toutes les autres. Cette machine a été inventée par le professeur William Ferrell, qui en a gratuitement fait présent au gouvernement. Elle ne revient qu'à 3.500 dollars et fait le travail de quarante calculateurs experts.

Pompes et outils à foin

Nous croyons que la plus grande fabrique du monde entier qui soit exclusivement consacrée à la manufacture des pompes et des outils à foin, est celle de F. E. Myers & Bro., dont les bureaux pour l'exportation sont situés B-17-21, Produce Exchange, New York, N. Y. (Etats-Unis d'Amérique). Les planchers des divers ateliers occupent une superficie de 350.000 pieds carrés, et dans ces ateliers 500 hommes sont exclusivement occupés à la construction des pompes et des outils à foin. Inutile de dire que cette fabrique possède l'outillage le plus moderne et que la compagnie est toujours prête à exécuter les commandes avec promptitude, quelle que soit leur importance. Adresser toute correspondance aux bureaux d'exportation: B-17-21 Produce Exchange, New York, N. Y. (Etats-Unis d'Amérique).

Chicago, centre des usines métallurgiques

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Cuando Venicia empezó á decaer, se hizo de poca importancia el puerto de Alexandria, mientras que surgieron las grandes ciudades comerciales de Europa en las costas del Atlántico, más cerca del rico hemisferio de las Américas, y más convenientes para los buques que traficaban entre la India y Europa.

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Machine qui prophétise

Une machine qui prophétise est un engin employé par les bureaux chargés de l'examen des côtes à Washington, D. C., et qui peut prédire et prédit en réalité l'heure des marées hautes et basses pour une localité donnée, et fait ces predictions une anée à l'avance. Ses prédictions peuvent ne pas se borner à une année mais c'est généralement là le maximum de travail qu'on exige de cette machine. Elle est d'une délicatesse difficile à apprécier. Pour faire ces prédictions des marées, qui sont publiées chaque année sous forme d'un gros volume de tableaux, la machine est d'abord mise en place et réglée, et en suite manœuvrée à la main. Comme on peut l'imaginer, le réglage de la machine requiert beaucoup de soin et d'intelligence. La prediction des marées exige que dix-neuf facteurs diffiérents soient déterminés. Or chaque facteur modifie tous les autres. La machine est donc construite de telle manière qu'un changement dans un facteur produit son effet sur tous les autres. On peut jusqu'à un certain point comprendre comment cela se fait si l'on remarque qu'il y a dix-neuf cadrans avec index à régler. Chaque index est sur une poulie montée excentriquement sur son arbre, et sur cette poulie passe une chaine qui va d'une poulie à l'autre. Il est évident que si l'excentricité d'une poulie est altérée, elle altère proportionnellement toutes les autres. Cette machine a été inventée par le professeur William Ferrell, qui en a gratuitement fait présent au gouvernement. Elle ne revient qu'à 3,500 dollars et fait le travail de quarante calculateurs experts.

Pompes et outils à foin

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Desde que se ha llamado la atención sobre la gran Catarata del río Victoria, en el Sur del Africa, se han hecho muchas comparaciones entre aquella y la Catarata del Niagara. En su conferencia sobre la "Distribución de Fuerza Motriz," en Johannesburg en Agosto del año pasado, preguntó el Professor W. E. Ayrton: ¿"Cuál es la verdadera comparación entre la potencia ó fuerza motriz de la Catarata del Victoria con la del Niágara? La respuesta fué: "El torrente del Niágara precipita de 62.000.000 á 104.000.000 de galones de agua por minuto, mientras que el Victoria solo precipitaba en agosto unos 5,000,000 de galones. El promedio de la altura de que cae el agua en el Niágara es de 160 pies, y el del Victoria es de 380 pies: de aqui que el mínimo de fuerza motriz que reprenta el Niágara es de unos 3,000,000 de caballos de fuerza motriz mientras la Catarata del Victoria sólo representa unos 580,000 caballos de fuerza, y, aceptando los datos dados por las autoridades locales de que la caída del Victoria en el mes de Noviembre último solo ascendia á unos 2,500,000 galones de agua por minuto, resulta de esto que el mínimo de fuerza motriz del Victoria no es mas que como una-décima parte del mínimo de fuerza motriz del Niagara. No se nos dice cual es el maximo del Victoria.

Thomas Edison

Thomas Edison cuenta á menudo el principio de su carrera desde la fecha en que le salvó la vida a un niño. El padre del muchachito era un agente de estación ferro-carrilera, y recompensó a Edison enseñándole la telegrafía. Aun antes de eso ya había empezado Edison á trabajar sistemáticamente. Fué del condado de Erie, Ohio, á Detroit, Mich., y á la edad de once años trató de leer la obra de Newton titulada "Principia." Hallando que le era muy difícil comprenderla, se preparo Edison para vencer las dificultades frecuentando y estudiando en la Biblioteca Pública de Detroit; pero la necesidad de ponerse a trabajar le impidió continuar, y tuvo que dedicarse a vendedor de periódicos y otros articulos en un tren, en el queño periodico, y estableció un laboratorio en el carro de los equipages. Cuando el conductor descubrió al muchacho haciendo sus experidespertar la rociada, al recibirse un despacho. Por algun tiempo anduvo errante por los Estacual ademas emprendio la publicacion de un pementos le dio un puñetazo en un lado de la cabeza, golpe que más tarde le trajo una sordera. Poco tiempo después de aquel percance obtuvo Edison una colocacion como telegrafista. Uno de los primeros inventos de Edison fué el de un aparato por medio del cual el seco retintin del receptor telegráfico hacia ladear y derramar un cubo de agua cuidadosamente colgado sobre el receptor. De este modo cuando las largas horas de trabajo le hacian quedarse dormido, estaba seguro de que lo haría dos occidentales centrales y el Canadá y últimamente fué á Boston. Alli recibió su primera leccion en materia de inventos. Obtuvo una patente por una máquina de votar; pero nadie la quiso, y el único bien que le hizo fué enseñarle que lo único que valia la pena y el costo de proteger con una patente era lo que el público necesitaba. Se puso á trabajar activamente, y una de las primeras cosas que descubrió fué un aparato para transmitir al mismo tiempo dos ó cuatro despachos por un mismo alambre, proporcionándoles asi á las compañías telegráficas el medio de realizar un inmenso ahorro. Aunque ya había hecho muchos útiles trabajos, era pobre cuando llegó á Nueva York; pero allí lo que el llama su mayor facultad, la de ver lo que debe hacerse y saber como hacerlo, demostró su potencia. La maquinaria de la de Gold and Stock Telegraph Co. se había quebrado ó descompuesto, y ninguno de los que estaban presentes podían componerla. Edison entró en el edificio, é inmediatamente puso el dedo en la dificultad. Al momento se le colocó allí, y poco tiempo después recibio cuarenta mil pesos por un impresor de telegráfico de acciones mejorado. De entonces acá ha obtenido un gran número de patentes de invencion, muchas de las cuales protegen grandes adelantos cientificos.

Hace muchos años, que la "Flint & Walling Manufacturing Company, cuya oficina la tienen en Nueva York, 96 Wall street, New York, N. Y., U. S. A., estan exportando sus molinos de viento, torres, tanques, bombas, etc., Ningún manufacturero de este país tiene mejor reputación que la Flint & Walling Mfg. Co. Sus manufacturas son de un alto grado de excelencia bajo todos conceptos y son exportadores muy fuertes, y publican libritos en inglés, aleman, francés y español que lo dicen todo sobre el molino de viento "Star," los cuales se diseñan para los trabajos tanto fuertes como variados requeridos en el extranjero. Los que deseen entablar correspondencia con ellos deberán dirigirse á la "Flint & Walling Mfg. Co.," oficina de Nueva York, 96 Wall street, New York, N. Y., U. S. A.

Mucho tiempo y trabajo se requiere para fabricar un arado por los antiguos métodos fabriles; pero en Los Estados Unidos todo se hace por maquinaria y en gran escala, y cada operario es un especialista que aprende á hacer solo una parte de la máquina ó instrumento. El resultado es que miles de arados se fabrican en muy poco tiempo, y por esta razón los arados y demás instrumentos americanos salen tan bien hechos y se pueden vender á precious que los ponen al alcance de todos en cualquier mercado.

Uso Industrial de los caballos

Ninguna bestia del reino animal ha contribuido tanto como el caballo á librar al hombre de una faena ingrata. El genio inventivo del hombre produjo los toscos y primitivos instrumentos agrícolas con que entrar en la lucha por la supervivencia de lo más idoneo, que llegó á ser el trabajo de la más remota historia del género humano.

El cultivo de la tierra con el trabajo manual cubría areas tan reducidas, y las operaciones eran tan restringidas, que el sobrante de los frutos acumulado era insuficiente para mantener la población de las ciudades. Tan pronto como se arañaba la tierra y se sembraba la semilla se suscitaba un conflicto entre las yerbas nocivas ó inútiles y las plantas alimenticias ó productoras de frutos indispensables para la subsistencia de la vida. El trabajo de cultivar una pequeña area era enorme, y todos los hombres se veian obligados por la necesidad á hacerse labradores.

El hombre es un animal tanto herbivoro como carnivoro, y diversificaba su *menu* con los productos de sus rebaños, así como con los frutos del cultivo de los campos. Durante largos periodos de tiempo se cosechaban los cereales con la hoz, y los rebuscadores seguían á los segadores, recogiendo el grano que quedaba en el suelo. La segadora de mano reemplazó á la hoz; pero el cultivo de extensos campos sembrados de trigo era imposible antes de inventarse la cosechadora tirada por caballos, haciendo una sola de estas máquinas el trabajo de diez hombres.

En todos los departamentos del cultivo práctico de la tierra el caballo es el precursor de una prospera agricultura. Un par de caballos de tiro tirando de un arado de reja múltiple pulverizan tanto terreno como veinte hombres. Con la rastra, la sembradora y la cosechadora un hombre es una multitud comparado con el labrador de la agricultura primitiva. Con la segadora, el rastro y la cargadora automática entrojan la cosecha de heno en proporciones que serian mas que imposibles con sólo el trabajo de mano. Destiérrese el caballo de la agricultura, y retrogradaria la civilzación á los tiempos primitivos.

No sólo en la agricultura, sino también en todas las industrias que requieren una fuerza económica y eficaz es indispensable el caballo. El caballo ha hecho posible una vasta metrópoli como un grande y productivo factor en la agricultura y un acarreador de productos y mercancias de las ciudades. En las minas, la agricultura, las empresas industriales y el transporte de mercancias no se le ha hallado todavía un sustituto al caballo, y su importancia está destinada á aumentar, más bien que disminuir con el progreso de la civilización moderna.

El Comercio de Norte America con Europa

Dos terceras partes de las exportaciones americanas fueron para Europa el año próximo pasado, y una mitad de las importaciones amecinas vinieron de Europa, resultando un balance comercial de 10 por ciento en nuestro favor.

En seis años el valor de las exportaciones de los Estados Unidos han ascendido por término á poco más de mil millones ($1,000,000,000) al año, y á menos de quinientos millones ($500,000,000) las del resto del mundo.

A pesar del inmenso volumen de nuestras exportaciones para Europa del año pasado—$230,000,000 de manufacturas y $782,000,000 de comestibles y materia prima para las fábricas—el tanto por ciento comparado con el total de nuestras exportaciones fué más bajo que el de ningún año que el de ningún otro año desde que terminñ la Guerra Civil.

Durante los veinte años que transcurrieron entre 1866 y 1885 el tanto por ciento de nuestras exportaciones para Europa fué 80 por ciento del total. De 80 por ciento en 1885 bajó á 77 por ciento en 1895 y á 67 por ciento en 1905.

El hecho es que los Estados Unidos se están haciendo más cosmopólita en su comercio, y aumentando rápidamente sus exportaciones para el Canadá, el Oriente, la America latina y los varios mercados del Pacífico.

Nuestras exportaciones para el Asia y la Oceania, cuyo tanto por ciento del total era solo 8 por ciento en 1865, bajo la reciprocidad, en 1880, después de su abrogación, subió á un 10 por ciento del total de nuestras exportaciones.

Nuestras exportaciones para el Asia y la Oceanía, que en 1880 no pasaba de 2 por ciento del total subió á 4 por ciento en 1890, á 7½ por ciento en 1900, y á mas de 10 porciento en 1905, y fácilmente llegará á un 20 por ciento del total dentro de diez años. Que este cálculo es moderado lo prueba el hecho de que las exportaciones de los Estados Unidos para el Asia solamente, han aumentado de $55,000,000 en 1903 á $136,000,000 en 1905, una ganancia de $80,000,000, ó cerca de 150 por ciento en dos años.

En tanto por cierto de nuestras importaciones procedente de Europa está bajando también. La razón es que nuestra demanda de articulos importados es principalmente en años recientes de comestibles y de materia prima que viene de países nuevos más bien que productos fabriles del antiguo mundo. Los productos tropicales y subtropicales tienen aqui una demanda especial, tales como el té y la seda en rama y las especias del Asia; el azúcar el café y las fibras de la Oceanía, y los mismos productos y frutos de la América latina. Semejantes importaciones llegaron á un valor de poco más de $200,000,000 en 1885, $300,000,000 en 1895, y más de $500,000,000 en 1905.

Uno de los notables efectos de la diminución del tanto por ciento de nuestro comercio extranjero con Europa es el desarrollo del comercio que pasa por nuestros puertos del Pacífico, del Golfo y de los del litoral del Norte y del Sur.

Por ejemplo, nuestras exportaciones por los puertos del Atlántico bajaron de $1,007,000,000 en 1900 a $978,000,000 en 1905, mientras que nuestras exportaciones por los puertos del Golfo aumentaron un 25 por ciento, las de los puertos del litoral del Norte un 55 por ciento y los de los puertos del Pacifico 65 por ciento.

En una palabra, nuestros puertos del Pacifico, del Golfo y del litoral, por los cuales sólo pasaba un 25 por ciento del total de las exportaciones del pais en 1895 y un 30 por ciento en 1900, manejaron durante los doce meses que terminaron el 31 de Diciembre de 1905 un 40 por ciento del total de las exportaciones, mientras que por los puertos del Atlantico bajaron de un 75 por ciento en 1895 a un 60 por ciento en 1905.

En cinco años del mismo desarrollo de nuestro comercio con el Asia, el Canadá y la America latina se hallará probablemente que una mitad del comercio de exportacion se hará fuera de los puertos del Atlántico.—*Comercial West.*

Los instrumentos y maquinaria agrícolas americanos se inspeccionan ante de salir de las fabricas.

Los Informes sobre las Cosechas

Mr. Hayes, Segundo Secretario del Departamento de Agricultura del Gobierno ha sometido á la Comisión de Agricultura del Congreso un plan para la reorganización del sistema de redactar los informes oficiales sobre las cosechas del pais. Se propone este plan corregir, si es posible, los defectos de este sistema, y perfeccionarlo de modo que sean absolutamente exactos los datos estadisticos sobre la condición de las cosechas y los resultados finales, y communicados de mes en mes al Departamento. La ventaja principal del nuevo plan consiste en abandonar el metodo de recoger de varias fuentes los informes sobre el estado de las cosechas y reunirlos en Washington para formar juicio sobre ellos por un solo hombre como jefe de la Oficina de Estadisticas.

Si el Congreso adopta el plan delineado por Mr. Hayes, se aumentará el costo anual del sistema de publicar los informes de $19,000 á unos $250,000 al año. El aumento del costo será necesario como resultado del abandono del present metodo de recoger los datos estadisticos suministrados por los Estados y los Condados, y la creación de unos treinta y cinco jefes de distrito que trabajaran en conjuncion con los empleados oficiales del Departamento Meteorológico en las principales estaciones meteorológicas de cada Estado.

Un jefe de distrito se asignara á cada uno de los principales Estados productores del algodon y de los cereales, y recogera los informes de los reporters municipales, y recorriendo también sus respectivo distrito para obtener los datos de primera mano. Los informes de cada Condado continuaran viniendo al Departamento. Continuara funcionando la Junta de Computadores del Departamento; pero los computos finales se haran en la mayor parte de los casos enteramente por los jefes de distrito.

Ademas del nuevo arreglo sobre los informes de los distritos, formaran parte del sistema un número de agentes especiales, quienes contribuiran en cuanto es posible á ayudar á los jefes de distrito á obtener informes exactos y fidedignos. La cuestion que confronta al Departamento de Agricultura es sobre si el Congreso accederá á hacer ese cambio, incurriendo el gasto adicional, aun cuando le haga presente el Departamento que con ese nuevo plan se obtendrán datos mucho mas exactos datos estadisticos.—*Hay Trade Journal.*

Los Ferro-carriles del Mundo

Los Estados Unidos estan á la cabeza del mundo entero, tanto en el número de millas como en el reciente crecimiento de sus ferro-carriles. De la longitud total de las vias ferreas del mundo entero, que en 1904 ascendia á un total de unas 534.000 millas inglesas, 211,074 millas se hallaban en los Stados Unidos, 35.323 en la Rusia Europea, 32.967 en Alemania, 28,102 en Francia, 26,950 millas en la India, 24.120 millas en Austria-Hungria, 22,634 en el Reino Unido, 11,611 millas en el Canadá, 15.560 millas en el Africa, 14,113 millas en Australia, 10,156 millas en México, 9.051 millas en Italia, 9.368 millas en el Brasil, 7.097 millas en Argentina, y 7.322 millas en Siberia, Manchuria y otras posesiones asiáticas, de Rusia, 4.495 en el Japón, y 1.176 millas en la China. No fué sino hasta el año de 1835 que el número de ferro carriles de los Estados Unidos llegó á una extensión de 1,000 millas, 1,098 aquel año. En 1850 habia aumentado el total hasta 9.021 millas; en 1860 á 30.696 millas; en 1865, 35.085; en la década de 1865 el total llegó á 217.328 millas de lineas ferreas, llas en operación, ascendiendo ese último año á 74.096 millas; el total en 1885 fué 128.3210; en 1895, 181,115; en 1900, 194.262; y en 1905 el tital llegó á 217.328 millas de lineas ferreas, el costo de construcción de las cuales, en su totalidad según el cálculo de *Poor's Manual*, ascendió á la enorme suma de once billones y dos tercios de billón de pesos, ($11,667.000,000) mientras que el costo de las de todo el mundo, incluyendo esta suma, se elevó á unos treinta y siete billones.

El Porvenir de la China

La Comisión Imperial que salió de la China para hacer un extenso viaje por la América y la Europa tiene por objeto ostensible el colectar sistemáticamente informes sobre los métodos politicos, financieros y administrativos de las naciones Occidentales: pero su objeto verdadero es, sin duda, impresionar á dichas naciones con la sinceridad y eficacia de las reformas que está llevando á efecto la China, y excitar sus simpatias por la abolición de la exterritorialidad. La historia se repite á si misma, y los que recuerdan los fines y los resultados de la misión de Burlinghame (en 1867) observarán con interés el curso del experimento actual. Bajo el punto de vista pintoresco los comisionados y sus séquitos no dejarán de llamar la atención; su inteligencia y su cultura darán probablemente al mundo una alta (y enteramenhe errada) idea del sistema que produce semejantes resultados. Muchos de los ochenta agregados y secretarios que acompañan á Tuan-fang (Gobernador de Hunan), al Duque Tsai y sus cólegas son hombres escogidos, capaces de demostrar satisfactoriamente á sus oyentes en Washington y Londres la idoincidad de su país para entrar en la urbana sociedad de las nacio bajo un pié denes igualadad—hombres que comprenden las exigencias de la politica internacional y un sabio uso de la prensa. Sin duda harán la debida impresión en Europa, y los triunfos de Wu-Ting-Fan se repetirán en los Estados Unidos. Pero la China, á donde regresarán después los comisionados imperiales, continuará, para todos los fines de la civilización, tan lejos de regenerarse como cuando envió hace cuarenta años con el mismo objeto la misión de Burlinghame. Esa nación abolió por un edicto la aplicación del tormento á los acusados, pero el mismo Wu-Ting-Fang, que vió la necesidad de hacer una concesión á los humanitarios del Oeste, la dejó permisible en los casos de robo y asesinato cuando la evidencia es evidente y el acusado recalcitrante, y el edicto no es probable que benefice á nadie, exceptuando á los comisionados viajantes. Ha reconocido con gratitud la valiosa ayuda del Profesor Jenks, que salió de Pekin con la seguridad de que su sugestión sobre la adopción del tipo del oro para la circulación monetaria se ilevaría á cabo; pero ha adoptado la cláusula del tratado de Mackay, deteriorando la acuñación de la moneda de cobre del país, dejando en confusón el cambio de la plata, sin ningún remedio práctico. Ha proclamado su decisión de fomentar la construcción de sus ferro-carriles y sus minas, y las oficinas provinciales del tipo usual y sin esperanza corrupto han surgido por todas partes, pero sus intenciones se pueden colegir por las del Gobernador General de Szechuen, que, habiendo recolectado unas £60,000 entre la distinguida clase patriótica de esa provincia, anuncia que ese dinero se dedicará al establecimiento de un colegio para educar maquinistas. Cuando estos estén amaestrados en la mundo entero tanto en el número de millas de construcción de ferro-carriles se podrá tratar debidamente del asunto. Está preparada para abolir el "likin," pero mientras que el tratado Mackay no se habia ratificado, elaboró un ingenioso sistema de sucursales aduaneras nacionales, para hostilizar al comerciante tan efectivamente como siempre. Ha establecido escuelas de enseñanza occidental, y una junta de politica comparativa; pero aunque no faltan hombres decididos y patrióticos que realmente aspiran al mejoramiento de la educación, y aunque se ha realizado un verdadero progreso en ciertos distritos, el Gobierno no reconoce otro mérito que el del dinero. Se requerirán hombres mucho más sabios que los estudiantes de la nueva China, mucho mejor dispuestos que los "reformadores" cantoneses que siguen á Kang Yu-wei, para conducir á la China por el camino de una ilustración política y moral, y sin un cambio material en el sistema del progreso gobernativo esto es imposible.

A pesar de los comisionados imperiales de la paz y los edictos, el objeto del Gobierno de la China es evidentemente hoy lo mismo que era cuando por primera vez se puso en contacto con la vanguardia del comercio militante, y no puedo describir mejor ese objeto que repitiendo las palabras de uno que escribió sobre el asunto de la misión de Burlinghame en 1869, Mr. Ross Browne, ex-ministro de los Estados Unidos en Pekin, criticando el consejo de Mr. (hoy) Sir Robert Hart, de tener paciencia y abstenerse de intervenir en el tardio cumplimiento de las promesas de China concerning su progreso, dice.

"Su objeto, de consiguiente, fué impedir todo progreso incompatible con el aislamiento de la China . . . Nada en la historia de China desde que entró en relaciones con el extranjero justifica la creencia de que los gobernantes imperiales tenian la más ligera idea de entrar en esas relaciones que imponen las leyes internacionales. Lo que ella quería era tiempo, tiempo para repetir en gran escala lo que hicieron cuando se prepararon para repeler la intrusión extranjera en Canton desde 1842 hasta 1857, y en Taku desde 1858 hast 1859: tiempo para establecer arsenales, construir cañoneros, envenenar el ánimo del pueblo en todas las provincias, y finalmente, cuando ya no podian posponer la ejecución de los tratados, echar fuera del país á todo extranjero."

Si fuera posible, bien sea por fuerza exterior ó por la voluntad de su pueblo, reformar radicalmente el sistema de gobierno chino, no habria necesidad de pesimismo al escribir sobre el futuro comercial y social del imperio, pues su pueblo está favorablemente dispuesto (cuando no se atacha sus costumbres religiosas ó sociales), y el país ofrece un vasto campo á las empresas educacionales é industriales. Como están las cosas, mientras que bajo cierto punto de vista filosófico podemos poner en duda el derecho de los europeos de imponerles su mal acogida presencia á los chinos, y conceder el derecho que tienen estos de protegerse por todos los medios posibles, parece ser inevitable que tarde ó temprano habrá que exigir á la fuerza, *vi et armis*, el cumplimiento de los tratados, ó abandonar en gran part los derechos que confieren.—*London Times.*

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Im Firmenverzeichnis für Käufer das im ersten Theil dieses Blattes wiedergegeben ist, werden unsere geehrten Leser die betreffenden Waarenartikel in deutscher Sprache wiedergegeben finden. Es geschieht dies um ihnen die Möglichkeit zu geben, mit unseren Inserenten leichter korrespondiren zu können.

Wer sich einen Katalog verschreibt, sollte es nicht unterlassen, die Katalogsnummer, falls eine solche im Bestellzetted vorhanden ist, beizufügen. Die Fabrikanten der Vereinigten Staaten geben vielfach besondere Kataloge für jede einzelne Maschinenlinie heraus; man sollte es auch nicht unterlassen genau anzuführen in welcher Sprache der betreffende Katlog gewünscht wird.

Der deutsche Tarif and die Vereinigten Staaten

Der Ausgleich der Tarif-Unterschiede zwischen Deutschland und den Vereinigten Staaten ist genügender Beweis des existirenden guten Einvernehmens zwischen den anderen Mächten und den Vereinigten Staaten. In der Freude über dieses kommerzielle Einvernehmen sollte aber ja nicht vergessen werden, dass die Beilegung nur eine temporäre ist und den Anfang dieser Meinungsverschiedenheit blos kennzeichnet. Deutschland gewährt amerikanischer Waare die Minimumraten ihres resp. Tarifes während einer Periode von 15 Monaten; in anderen Worten bis zum 30. Juni 1907. Als Ausgleich dafür fahren die Vereinigten Staaten fort die Einführung gewisser deutscher Waaren, unter geringerer Verzollung durchgehen zu lassen, und zwar: Thonwaaren, rohen Weinstein, Weinhefe, Vermuth, Gemälde, Pastelle und Federzeichnungen sollen nach Sektion 3 des Dingley Tarifaktes unter geringerer Zollberechnung hier eingeführt werden dürfen. Ausserdem haben die Vereinigten Staaten auf Ansuchen der deutschen Exporteure gewisse Veränderungen in der Administration des Zollsystems vorgenommen und dem Kongress sogar eventuelle Abänderungen des administrativen Zoll Aktes unterbreitet. Ein gegenseitiger Wunsch zur Verhütung eines Tarifkrieges hat die vorgenannte Konzession bedingt; es wird angenommen dass der Grund worauf Deutschlands Gewährleistung zu Gunsten der Vereinigten Staaten basirt ist, eigentlich nict die effektive Klausel darstellt ob es die eine odet die andere, oder wer die begünstigtere Nation der beiden sei, sondern dass daraus noch weitere Unterhandlungen erstehen mögen, deren Ausgleichung einen längeren Termin zur Folge haben wird.

Die Vereinigten Staaten sowohl als Deutschland dürften durch einen Kriegzoll leiden; der einzige Unterschied wäre in wieweit dieser Nachtheil wirkt und bis zu welchem Grade er ausbricht. Und ist es für beide Theile deshalb von Nöthen sich diesen kurzen Waffenstillstand so gut als möglich auszunutzen. Die grosse Frage welche durch diese Meinungsverschiedenheit erörtert werden wird—eine Frage die doch früher oder später gelöst werden muss—besonders im Interesse des wachsenden amerikanischen Handels, ist wahrlich nicht eine Frage der sogen. "Protektion" oder "Nicht Protektion," sondern nach welcher Methode die Vereinigten Staaten sich am vortheilhaftesten gegen die Tarif-Systeme anderer Länder systematisiren, anpassen können. Die Tarif-Revision wird in den Vereinigten Staaten mehr und mehr zur wachsenden Nothwendigkeit, die Befürworter derselben differiren nur in der Art und Weise in welcher das Endziel am besten hervorgebracht werden kann. Die Vorschläge variiren zwischen einer allgemeinen Zollrevision und der Annahme von Maximum- und Minimum- Zusatzartikeln, resp. über den Anfang eine kommerziellen Vertrages mit den auswärtigen Ländern. Die Vorlage der Eisenbahn Raten und anderer örtlicher Probleme dürfte zwar eine Diskussion dieses Themas während dieser Session verhindern, doch die augenblickliche Andeutung scheint zum Glauben zu berechtigen, dass dieser Punkt einer der wichtigsten Fragen während der Session des nächsten Kongresses bilden werde.

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Los Ferro-carriles del Mundo

Los Estados Unidos estan á la cabeza del mundo entero, tanto en el numero de millas como en el reciente crecimiento de sus ferrocarriles. De la longitud total de las vias férreas del mundo entero, que en 1904 ascendia a un total de mas 534.000 millas inglesas, 211.074 millas se hallaban en los Stados Unidos, 35.323 en la Rusia Europea, 32.007 en Alemania, 28.102 en Francia, 26.050 millas en la India, 24.120 millas en Austria-Hungría, 22.634 en el Reino Unido, 11.611 millas en el Canada, 15.500 millas en el África, 14.113 millas en Australia, 10.156 millas en México, 9.051 millas en Italia, 9.368 millas en el Brasil, 7.097 millas en Argentina, y 7.322 millas en Siberia, Manchuria y otras posesiones asiáticas, de Rusia, 4.495 en el Japón, y 1.176 millas en la China. No fué sino hasta el año de 1835 que el número de ferro carriles de los Estados Unidos llegó á una extensión de 1.000 millas, 1.098 aquel año. En 1850 había aumentado el total hasta 9.021 millas; en 1860 á 30.696 millas; en 1865, 35.085; en la década de 1865 el total llegó á 217.328 millas de lineas ferreas, llas en operación, ascendiendo ese último año á 74.096 millas; el total en 1885 fue 128.3210; en 1895, 181.115; en 1900, 194.262; y en 1905 el tital llegó á 217.328 millas de lineas ferreas, el costo de construcción de las cuales, en su totalidad según el cálculo de *Poor's Manual*, ascendió á la enorme suma de once billones y dos tercios de billón de pesos, ($11.-667.000,000) mientras que el costo de las de todo el mundo, incluyendo esta suma, se elevó á unos treinta y siete billones.

El Porvenir de la China

La Comision Imperial que salió de la China para hacer un extenso viaje por la America y la Europa tiene por objeto ostensible el colectar sistematicamente informes sobre los metodos politicos, financieros y administrativos de las naciones Occidentales; pero su objeto verdadero es, sin duda, impresionar á dichas naciones con la sinceridad y eficacia de las reformas que está llevando a efecto la China, y excitar sus simpatias por la abolición de la ex-territorialidad. La historia se repite á si misma, y los que recuerdan los fines y los resultados de la mision de Burlinghame (en 1867) observaran con interes el curso del experimento actual. Bajo el punto de vista pintoresco los comisionados y sus sequitos no dejaran de llamar la atención; su inteligencia y su cultura darán probablemente al mundo una alta (y enteramente errada) idea del sistema que produce semejantes resultados. Muchos de los ochenta agregados y secretarios que acompañan á Tuan-fang (Gobernador de Hunan), al Duque Tsai y sus colegas son hombres escogidos, capaces de demostrar satisfactoriamente a sus oyentes en Washington y Londres la idoneidad de su país para entrar en la urbana sociedad de las naciones bajo un pié de igualdad—hombres que comprenden las exigencias de la politica internacional y un sabio uso de la prensa. Sin duda harán la debida impresión en Europa, y los triunfos de Wu-Ting-Fan se repetirán en los Estados Unidos. Pero la China, á donde regresaran después los comisionados imperiales, continuará, para todos los fines de la civilizacion, tan lejos de regenerarse como cuando envió hace cuarenta años con el mismo objeto la misión de Burlinghame. Esa nación abolió por un edicto la aplicación del tormento á los acusados, pero el mismo Wu-Ting-Fang, que vió la necesidad de hacer una concesión á los humanitarios del Oeste, la dejó permisible en los casos de robo y asesinato cuando la evidencia es evidente y el acusado recalcitrante, y el edicto no es probable que beneficie á nadie, exceptuando á los comisionados viajantes. Ha reconocido con gratitud la valiosa ayuda del Profesor Jenks, que salió de Pekin con la seguridad de que su sugestión sobre la adopción del tipo del oro para la circulación monetaria se llevaria á cabo; pero ha adoptado la cláusula del tratado de Mackay, deteriorando la acuñación de la moneda de cobre del país, dejando en confusón el cambio de la plata, sin ningún remedio práctico. Ha proclamado su decisión de fomentar la construcción de sus ferro-carriles y sus minas, y las oficinas provinciales del tipo usual y sin esperanza corrupto han surgido por todas partes, pero sus intenciones se pueden colegir por las del Gobernador General de Szechuen, que, habiendo recolectado unas £00,000 entre la distinguida clase patriótica de esa provincia, anuncia que ese dinero se dedicará al establecimiento de un colegio para educar maquinistas. Cuando estos estén amaestrados en la mundo entero tanto en el número de millas de construcción de ferro-carriles se podrá tratar debidamente del asunto. Está preparada para abolir el "likin," pero mientras que el tratado Mackay no se había ratificado, elaboró un ingenoso sistema de sucursales aduaneras nacionales, para hostilizar al comerciante tan efectivamente como siempre. Ha establecido escuelas de enseñanza occidental, y una junta de politica comparativa; pero aunque no faltan hombres decididos y patrióticos que realmente aspiran al mejoramiento de la educación, y aunque se ha realizado un verdadero progreso en ciertos distritos, el Gobierno no reconoce otro mérito que el del dinero. Se requeriran hombres mucho más sabios que los estudiantes de la nueva China, mucho mejor dispuestos que los "reformadores" cantoneses que siguen á Kang Yu-wei, para conducir á la China por el camino de una ilustración politica y moral, y sin un cambio material en el sistema del progreso gobernativo esto es imposible.

A pesar de los comisionados imperiales de la paz y los edictos, el objeto del Gobierno de la China es evidentemente hoy lo mismo que era cuando por primera vez se puso en contacto con la vanguardia del comercio militante, y no puedo describir mejor ese objeto que repitiendo las palabras de uno que escribió sobre el asunto de la misión de Burlinghame en 1869, Mr. Ross Browne, ex-ministro de los Estados Unidos en Pekin, criticando el consejo de Mr. (hoy) Sir Robert Hart, de tener paciencia y abstenerse de intervenir en el tardío cumplimiento de las promesas de China concerning su progreso, dice.

"Su objeto, de consiguiente, fue impedir todo progreso incompatible con el aislamiento de la China . . . Nada en la historia de China desde que entró en relaciones con el extranjero justifica la creencia de que los gobernantes imperiales tenian la más ligera idea de entrar en esas relaciones que imponen las leyes internacionales. Lo que ella queria era tiempo, tiempo para repetir en gran escala lo que hicieron cuando se prepararon para repeler la intrusión extranjera en Canton desde 1842 hasta 1857, y en Taku desde 1858 hast 1859: tiempo para establecer arsenales, construir cañoneros, envenenar el ánimo del pueblo en todas las provincias, y finalmente, cuando ya no podian posponer la ejecución de los tratados, echar fuera del país á todo extranjero."

Si fuera posible, bien sea por fuerza exterior ó por la voluntad de su pueblo, reformar radicalmente el sistema de gobierno chino, no habria necesidad de pesimismo al escribir sobre el futuro comercial y social del imperio, pues su pueblo está favorablemente dispuesto (cuando no se atacha sus costumbres religiosas ó sociales), y el país ofrece un vasto campo á las empresas educacionales é industriales. Como están las cosas, mientras que bajo cierto punto de vista filosófico podemos poner en duda el derecho de los europeos de imponerles su mal acogida presencia á los chinos, y conceder el derecho que tienen estos de protegerse por todos los medios posibles, parece ser inevitable que tarde ó temprano habrá que exigir á la fuerza, *vi et armis*, el cumplimiento de los tratados, ó abandonar en gran part los derechos que confieren.—*London Times.*

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Wer sich einen Katalog verschreibt, sollte es nicht unterlassen, die Katalogsnummer, falls eine solche im Bestellzetted vorhanden ist, beizufügen. Die Fabrikanten der Vereinigten Staaten geben vielfach besondere Kataloge für jede einzelne Maschinenlinie heraus; man sollte es auch nicht unterlassen genau anzuführen in welcher Sprache der betreffende Katlog gewünscht wird.

Der deutsche Tarif and die Vereinigten Staaten

Der Ausgleich der Tarif-Unterschiede zwischen Deutschland und den Vereinigten Staaten ist genügender Beweis des existirenden guten Einvernehmens zwischen den anderen Mächten und den Vereinigten Staaten. In der Freude über dieses kommerzielle Einvernehmen sollte aber ja nicht vergessen werden, dass die Beilegung nur eine temporäre ist und den Anfang dieser Meinungsverschiedenheit blos kennzeichnet. Deutschland gewährt amerikanischer Waare die Minimumraten ihres resp. Tarifes während einer Periode von 15 Monaten; in anderen Worten bis zum 30. Juni 1907. Als Ausgleich dafür fahren die Vereinigten Staaten fort die Einführung gewisser deutscher Waaren, unter geringerer Verzollung durchgehen zu lassen, und zwar: Thonwaaren, rohen Weinstein, Weinhefe, Vermuth, Gemälde, Pastelle und Federzeichnungen sollen nach Sektion 3 des Dingley Tarifaktes unter geringerer Zollberechnung hier eingeführt werden dürfen. Ausserdem haben die Vereinigten Staaten auf Ansuchen der deutschen Exporteure gewisse Veränderungen in der Administration des Zollsystems vorgenommen und dem Kongress sogar eventuelle Abänderungen des administrativen Zoll Aktes unterbreitet. Ein gegenseitiger Wunsch zur Verhütung eines Tarifkrieges hat die vorgenannte Konzession bedingt; es wird angenommen dass der Grund worauf Deutschlands Gewährleistung zu Gunsten der Vereinigten Staaten basirt ist, eigentlich niet die effektive Klausel darstellt ob es die eine oder die andere, oder wer die begünstigtere Nation der beiden sei, sondern dass daraus noch weitere Unterhandlungen erstehen mögen, deren Ausgleichung einen längeren Termin zur Folge haben wird.

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Die Zukunft von China

Die kaiserliche Kommission welche China verliess, um eine ausgedehnte Tour nach Amerika und Europa anzutreten, hat scheinbar den Zweck, eine systematische Sammlung von Auskünften über politische, finanzielle und administrative Methoden der Nationen des Westens zu machen. Der wirkliche Zweck soll aber, zweifelsohne, darin bestehen, die verschiedenen Nationen mit der Aufrichtigkeit und Wirksamkeit der in China untergehenden Reformen bekannt zu machen und in der Weise Sympathien zu erwerben für die Abschaffung besonderer Territorialmacht und Territorial-Besitzes. Die Weltgeschichte wiederholt sich. Diejenigen, die sich des Zweckes und Resultates der Burlingham-Mission in 1867 noch erinnern, dürften das heutige Experiment mit besonderem Interesse verfolgen. Von einem pittoresken Standpunkte aus dürften die Kommissäre und deren Gefolge allerdings ungewöhnliche Aufmerksamkeit auf sich lenken; ihre Intelligenz und Bildung sollten auch vielleicht dazu beitragen der Welt eine hohe (und ganz falsche) Idee des Systems zu verschaffen, welches derartige Konditionen hervorbringen kann. Gar viele der aus achtzig Attaches und zahlreichen Sekretären bestehenden Kommission die Tuang-Fang (Gouverneur von Hunan), Herzog Tsai und ihre Kollegen begleiten, sind hervorragende für diesen Zweck speziell ausgesuchte Persönlichkeiten: Männer, die wohl fähig sind, einem feinen Publikum in Washington und London ihre Mission befriedigend zu erklären und von der Tüchtigkeit ihres Landes Beweis zu geben; Männer, die bereden können sollten, dass China in der That fähig sei, sich dem internationalen Einvernehmen der Völker ebenbürtig zu stellen, und es wohl verstehen müssen, kritische Anforderungen internationaler Politik sich zu Nutze zu ziehen und von der Presse in kluger Weise Gebrauch zu machen. Europa dürfte deshalb recht imponirt werden; und die Triumphe die Wu-Ting-Fang dort feiern wird dürften in noch grösserem Masstabe in den Vereinigten Staaten Gehör finden. China aber, nach dem diese kaiserliche Kommission später zurückkehrt, wird nach wie vor zum Zweck der Veredelung und Neugeburt unfähig wie vor vierzig Jahren sein als die Burlingham'sche Kommission zu ähnlichem Zweck eine Tour um die Welt machte. Menschenquälerei wurde zwar, laut besonderem Edikt abgeschafft, doch selbst Wu-Ting-Fang der die Nothwendigkeit einer solchen Konzession westlicher Humanität wegen als geboten erachtete, liess die Körperstrafe dennoch in Fällen von Räuberei und Mord als gesetzmässig bestehen bleiben, in Fällen "wo der Beweis unumssösslich sei und der Angeklagte widerspenstig ist" und dürfte somit dieses Edikt wohl keinem als den reisenden Missionären von irgend welchem Nutzen werden. China hat dankend die werthvolle Hülfe von Professor Jenks anerkannt, der Peking mit der Versicherung verliess, dass seine Befürwortung für eine Goldwährung angenommen werden würde; es hat die Währungsklausel des Mackey-Vertrages erfüllt indem es die Kupfermünzung des Landes entwürdigte, dabei die Silberauswechselung in solcher Konfusion zurücklassend, dass kein praktischer Ausweg vorhanden scheint. Es hat seinen Entschluss bekannt gegeben, Eisenbahnen und Gruben selbst zu entwickeln nachdem verschiedenartige Bureaus in den Provinzen von der üblichen hülflosen Korruption, die so vielfach im Entstehen sind, befreit werden können; diese Absicht lässt sich, andererseits, durch die Handlungsweise des General-Gouverneurs von Szechuen erklären, der, nachdem er 300.000 Dollar von patriotischen Familien der Provinz eingesammelt hatte, bekannt gab, dass dieses Geld zur Errichtung eines Kollegs für die weitere Ausbildung von Ingenieuren angewendet werden würde. Sobald solche ausgebildet worden sind, kann flott mit der Errichtung von Eisenbahnen begonnen werden. China ist bereit das "Likin" Uebel aufzuheben, doch als noch der Mackey-Vertrag ungenehmigt war hat es ein feinerdachtes System für innere Zollfilialen erfunden, die darauf berechnet waren, die Händler so stark als irgend möglich zu beeinträchtigen. Es hat, allerdings, Schulen mit westlicher Wissenschaft etablirt, ja sogar eine Behörde für komparative Politik, und obgleich es keinen Mangel an patriotischen Männern hat die thatsächlich nach besserer und verbesserter Bildung streben, und ungeachtet der Thatsache, dass in gewissen Distrikten event. Fortschritt bereits gemacht wurde, erkennt die chinesische Regierung soweit kein anderes Verdienst als "das Geld" an. Es wird Männer brauchen weiser als die Studenten "Jung Chinas," besser gesinnt als die sogen. "Kanton" Reformer der Kang-Ju-Weis Jünger um das Land auf dem Pfade der politischen und moralischen Erleuchtung zu leiten—doch ohne besondere System Veränderung der Regierung ist ein Fortschritt in dieser Richtung wohl kaum möglich.

Unbedingter Frieden, Kommissionäre und Edikte, der heutige Zweck der chinesischen Regierung war auch damals der Hauptbewegungspunkt. Derselbe alte politische Schachzug der der Vorhut des Handelskampfes gegenübergestellt wurde. Was jene Politik damals bedeutete kann wohl besser, eingehender beantwortet werden durch Wiederholung der Worte Desjenigen, der s. Z. über das Thema der Burlington Mission (in 1869) schrieb: Herr Ross Browne, früherer Gesandter der Vereinigten Staaten in Peking. Ernsthaft Herrn Harts (heute Sir Robert Hart) Bittgesuch um Geduld und Machteinmischung in Chinas langsamer Ausführung seiner Fortschrittversprechungen kritisirend, sagte er:

"Der Zweck, deshalb, war allen Fortschritt der mit chinesischer Isolation unvereinbar ist, zu verhüten. * * * Seit dem Anbegin auswärtiger Verbindungspolitik liefert China's Geschichte nicht den geringsten Beweis welcher zum Glauben berechtigt, dass seine kaiserlichen Herrscher den leisesten Wunsch hegen oder jemals gehegt hätten in Nationalbeziehungen mit anderen Völkern zu treten wie es das internationale Völkerrecht bedingt. Was es stets wirklich erwünschte war "Zeit," Zeit in grösserem Masstabe, um nur das wiederholen zu können, was es in der Vorbereitung gegen auswärtige Intrusion in Canton, 1842 bis 1857 und weiter in Taku, 1858 bis 1859 im Sinne hatte; Zeit, Arsenale zu errichten, Kriegsschiffe zu bauen, den Geist des Volkes aller Provinzen zu vergiften—und dann endlich wenn die Ausführungen event. Verträge nicht länger aufgeschoben werden können, einen endgültigen Versuch zu machen jeden Ausländer aus dem Lande herauszutreiben."

Wäre es möglich, entweder durch auswärtigen Druck oder mit dem Willen des Volkes, das chinesische Regierungs-System radikal abzuändern, so bliebe wahrlich kein Pessimismus nothwendig, über die kommerzielle und wissenschaftliche Zukunft des Chinareiches besorgt zu sein; das Volk selbst ist gut genug aufgelegt (so lange seine Religion und seine sozialen Verhältnisse und Gebräuche nicht in Angriff gebracht werden) und das Land selbst bietet ein ungeheueres Feld für Unternehmung auf dem Gebiete der Erziehung sowohl als auch der Industrie. Doch, wie Sachen augenblicklich stehen, wenn wir das Recht der Europäer ihre unliebe Gegenwart bei ihren Chinesenbrüdern sich aufzudrängen von einem philosophischen Standpunkte in Frage stellen und die Rechte der letzteren sich selbst zu beschützen in jeder Hinsicht zugestehen müssen —scheint es uns dennoch unausbleiblich, dass früher oder später diese Verträge in Kraft treten *vi et armis* oder dass die von ihnen gewährten Rechte grösstentheils werden aufgegeben werden müssen.

Pumpen und Heuwerkzeug

Wir sind der Ansicht, dass die allergrösste Fabrik der Welt die sich ausschliesslich mit der Herstellung von Pumpen und Heugeräthen beschäftigt, die der Firma F. E. Myers & Bro. ist, deren Export-Bureau sich B-17-21 Produce Exchange, New York, N. Y., U. S. A., befindet. Die Fabrikanlage enthält im Ganzen eine Ausdehnung von 350.000 Quadratfuss Raum und beschäftigt 500 Angestellte die Pumpen und andere Heuwerkzeuge bauen. Es braucht wohl kaum an dieser Stelle bemerkt zu werden, dass die Fabrik eine in jeder Hinsicht moderne ist; sie hat die allerneuesten Einrichtungen, vollständige Ausstattung und ist die Gesellschaft somit in der Lage, Aufträge jeder Art und Grösse promt und perfekt zu erledigen. Alle auswärtigen Briefe sollten direkt an die Export-Office gerichtet werden und zwar adressire man: F. E. Myers & Bro., B. 17-21, Produce Exchange, New York, U. S. A.

Siet vielen Jahren bereits exportirt die wohlbekannte Firma Flint & Walling Mfg. Co., New York ihre Windmotoren, Windthürme, Wasserbehälter, Pumpen, u. s. w. nach allen Welttheilen. Fast kein Fabrikant dieses Landes erfreut sich eines bedeutendern Rufes als die ebengenannte Firma. Die von ihnen hergestellten Waaren sind bester Qualität und sie selbst gehören zu den grössten Exporteuren des Landes. Ihre Kataloge erscheinen in deutscher, englischer, spanischer und französischer Sprache und liefern ausführliche Beschreibung über ihre "Star" Windmotoren, wie über jede andere Art von Windmotoren wie sie für schwere und verschiedenartige Arbeit im Auslande nöthig zu sein scheinen. Alle Diejenigen die mit gen. Firma sich verbinden wollen sollten direkt an sie schreiben. Ihre Adresse ist: Flint & Walling Mfg. Co., New York, 90 Wall street, U. S. A.

Amerika und Deutschland

Eine fünfzehn Monate lange Frist zum Nachdenken ihrer event. Handelsbeziehungen und Verhältnisse hat die deutsche Regierung den Vereinigten Staaten koncessirt. Durch das Anhalten ihrer provisorischen Uebereinkunft und durch ein temporäres Aufgeben der Tarifpolitik, was ihr so sehr am Herzen zu liegen scheint hat die deutsche Regierung wenigstens diesen Lande gegenüber, ihre Bereitwilligkeit kund gethan mit Konditionen und kommerziellen Beschaffenheiten zu handeln wie man sie thatsächlich findet. Richtig erkennt die deutsche Regierung an, dass ein Tarifkrieg Deutschland mehr als die Vereinigten Staaten schaden würde und dass ein drittes Land nur die Wohlthat eines solchen Krieges geniessen kann und muss.

Gar viele amerikanische Fabrikanten giebt es denen dieses neue bekanntgewordene Verfahren willkommen sein dürfte. Und obgleich es ihnen ja klar genug ist, dass ein Tarifkrieg Deutschland grösseren Schaden als diesem Lande zufügen dürfte, wissen sie, dessenungeachtet, aber auch, dass ein solcher Krieg ihnen zum Schaden und für America nutzlos ausfallen müsse. Zuvörderst werden sie eines guten Marktes beraubt werden und in diesem Zeitalter der Konkurrenz können gute neue Märkte nicht allzuleicht gefunden werden. Sie werden, unzweifelhaft, während dieses Waffenstillstandes ihr Möglichstes thun, die amerikanische Regierung zu beschwichtigen ein bleibendes Verhältnis mit Deutschland endlich einzugehen und dasselbe aufrechtzuerhalten.

Die Bradley'schen Heuballenpressen die von der Firma David Bradley Mfg. Co., Bradley, Ill., U. S. A., hergestellt werden, sind in jedem solchen Lande bekannt, wo moderne Methoden für die Hantirung der Heuernte zur Verwendung kommen. Es ist dies eine Maschine die nicht allein ungewöhnliche Stärke mit einfacher Bauart verbindet, sondern sich auch als ungewöhnlich leicht in der Hantirung erweist. Ein Bild dieser Presse finden Leser auf der vorderen Reklamseite des Deckels dieses Blattes. Unsere geschätzten Leser werden recht thun sich mit der Firma in Verbindung zu setzen und von ihr Einzelheiten, Verkaufsbedingungen und dergleichen kommen zu lassen.

Eine angenehme Feier

Herrn William H. Caldwell, Inhaber der Firma "Chadborn & Caldwell" Mfg. Co., Newburgh, New York, wurde jüngst ein schöner und aufrichtiger Tribut von den Beamten und Angestellten seiner Gesellschaft entgegengebracht; ihm wurde zugleich ein hübsches Freimauerer Berlock in Anerkennung seiner Exekutiven Fähigkeit überreicht, ist doch in grossem Masstabe die Geschäftsentwickelung der Gesellschaft ihm zuzuschreiben. Die Fabrikanlage nimmt heute einen bedeutenden Platz in der Rasenmäher Fabrikation für inländischen und auswärtigen Bedarf ein. Es war dies aber auch ein Beweis des Tributes der persönlichen Hochachtung in welcher Herr Caldwell bei Kollegen wie auch bei Angestellten steht, und galt allgemein als eine Feier an der das Herz und der gute Wille gleichsam theilnahmen. Die Ortszeitung, die "Newburgh News," gab folgenden Bericht über die Uebergabe und Annahme des Geschenkes:

"'Die Präsentation fand in der Rasenmähmaschinen Fabrik, an der Leander- und South William Strasse, statt. Um neun Uhr wurde die Kraft abgedreht und die Anwesenden versammelten sich im zweiten Stockwerke des grossen Gebäudes, Herr Caldwell wurde aus seinem Bureau geholt, alswann das Geschenk ihm von Herrn Albert W. Mapes mit folgenden Worden überreicht wurde:

"Beim Anblick der vielen Anwesenden hier, werde ich unbedingt an den Anfang dieses Geschäftsunternehmens, vor etwa vierzehn Jahren, erinnert. Keiner der Angestellten die beim Anbeginn dieses Unternehmens s. Z. theilnahmen ist heute hier—ausser Ihnen und mir. Wir beide sind die einzigen Pioniere die so schwer für den Erfolg dieses neuen Unternehmens der Gesellschaft zu kämpfen hatten. Allerdings dürfen wir auf jene Tage nicht so *nolens volens* zurückblicken, ohne uns unseres ersten Präsidenten, Ihres geschätzten Vaters, gleichermassen zu erinnern. Noch ehe unsere Fabrik fertighergestellt war, ereilten uns jene Panikzeiten der Jahre '92 und '93; wir sahen unsere Arbeit und gleichsam unser Kapital in den scheinbar bodenlosen Abgrund sinken, bis es wahrlich schien, als ob nichts zurückbleiben würde; doch der unbezämbare Wille Ihres seligen Vaters trug dazu bei, uns Alle zu stärken; er ermuthigte uns nur weiter fortzufahren bis wir einen Boden gefunden haben auf den wir sicher sollten stehen können.

Und dass seine optimistische Ansich eine richtige war ist allen nun offenbar klar geworden, denn die kleine Werkstatt mit nur wenigen Arbeitern hat sich in eine gar enorme Fabrik verwandelt in der wir alle heute thätig sind, von einer gehörigen Anzahl Angestellter unterstützt durch deren Arbeit und Treue es uns möglich wird, etwa 500 Mähmaschinen täglich fertigherzustellen.

"Wir besitzen nicht allein die grösste, sondern auch die bestausgestattete Mahmaschinenfabrik der Welt—und gestatten Sie, dass ich auch beifüge, die bestbenannte ihrer Art. Wir haben unser Unternehmen mit Nichts angefangen, und zu einer Periode, als England bereits sechzig Jahre lang Mäher fabrizirt hatte; heute durfen wir uns der Thatsache rühmen die doppelte Anzahl aller Mäher herzustellen die von allen Fabrikanten Englands zusammen fabrizirt werden. Ich sage dieses wahrlich nicht in herausfordernder Weise, doch wünsche ich damit blos darzuthun, dass trotz der schweren Hindernisse die die meisten Männer entmuthigt hätten es uns dessenungeachtet gelang einen Erfolg im Angesicht sicherscheinender Niederlage zu erzielen, was einzig und allein aber durch das herzliche Einvernehmen und Mitwirken der ganzen Arbeiterforce nur möglich war.

"Die an der Leitung dieses Geschäftes stehen, waren zu jeder Zeit bereit dies anzuerkennen und Jedem würdiges Lob für aufrichtige und treue Unterstützung angedeihen zu lassen. Andererseits haben die Arbeiter es nie unterlassen ihre Beweise der Anerkennung über die Verantwortlichkeit und Leistungsfähigkeit der Leiter Ausdruck zu geben.

"Als vor etwa zwei Jahren es augenscheinlich wurde, dass Derjenige der solange unser aller Leiter war, bald berufen sein wird seinen Leitungsstab niederzulegen, hefteten sich unsere Blicke selbstverstandlich auf seinen Erben und Nachfolger. Es gab nur einen Gedanken: "Wer soll diese schwierige Verantwortung unternehmen." Doch da Sie von vorne herein mit allen Einzelheiten der Arbeit so vollkommen vertraut waren und so riesige Fähigkeit dafür zu besitzen schienen, und da gleichzeitig eine so herrliche Aussicht der Möglichkeiten und thatsächlich eine Nothwendigkeit nach Ihnen vorhanden schien—so fiel die Wahl auf Sie. Sie erinnern sich vielleicht noch, dass die Direktion Sie mit aller Authorität bekleidete und Sie ersuchte Ihre alleinige Urtheilskraft in allen Sachen zu gebrauchen und eifrig versprach, Sie in allen Ihren Handlungen bestens zu unterstützen.

"Doch auch die Angestellten der Fabrik waren weitsichtig genug, Ihren Werth als Organisator und Direktor aufzufassen und anzuerkennen; sie lernten Sie, hochgeehrter Herr, bald schätzen, nicht allein für Ihr Interesse in deren persönlicher Wohlfahrt und Wohlergehen, doch auch gleichzeitig für Ihren aufrichtigen Eifer im Interesse der Gesellschaft, die Sie vertreten. Dies wurde bei mehreren Gelegenheiten und in verschiedener Weise zur Genüge bewiesen. Die grosse ganze Fabrikfamilie hat mich nun ersucht, diesen ihren Gefühlen in einigen Worten Ausdruck zu verleihen, für sie zu reden; und just als ich von dieser Ehre Gebrauch machen wollte kam mir der Gedanke von dem ältesten Mädchen, in der schönen Weihnachtsgeschichte, von Kate Douglas Wiggins in den Sinn. Als sie beauftragt wurde die ganze Zahl der vielen kleinen Kinder unter ihrer Obhut zu nehmen und darauf zu achten, dass sie sich ja recht hübsch am Weihnachtstische während des Weihnachtsdiners betragen, antwortete sie, dass sie überhaupt nicht mehr gehen wolle. Es dürfte schwer genug für sie selbst sein ihrer eigenen Manieren Herr zu werden, doch das Thun und Treiben einer ganzen Familie zu beaufsichtigen, das würde in der That viel zu viel für sie sein. In gleichem Sinne kann ich wohl meine eigenen Gefühle für Sie hier zum Ausdruck bringen, doch die Gefühle aller anderen Anwesenden anszusprechen ist mir wahrlich ganz unmöglich. Ich kann nur sagen, dass Alle hier lebhaftes Interesse für Sie und für Alles was in Ihrem Bereiche liegt stets zu Tage gefördert haben. Als Sie vor kurzer Zeit z. B. zum Präsidenten der Geschäftsmannschaft-Vereinigung erwählt wurden und als alle Zeitungen so herrliche Tribute über Sie und Prophezeihungen uber die Zukunft dieser Vereinigung unter Ihrer hervorragenden Leitung brachten, schienen diese Berichte jeden Einzelnen zu beleben, stolzer zu machen, als ob es ein Kompliment für jeden selber wäre. Dann, wiederum, als vor wenigen Tagen das schreckliche Missgeschick über Sie hereinbrach und es schien als ob Sie Ihren einzigen Sohn dabei verlieren müssten, fühlte Jeder als ob die herandrohende Wolke auf ihn selber einbrechen würde; es war eine persönliche Trauer und herzliche Wünsche und aufrichtige Gebete stiegen auf für die Genesung des Knaben. Und nun, da die gütige Hand der Vorsehung dieses Krankheitsübel glücklich abgewendet, und Sie den theueren Kranken wieder unter Ihrem eigenen Dache hegen und pflegen können, freuen sich alle wieder mit Ihnen im Glücke einer schönen Zukunft.

"Da sie nun dieses Interesse in Ihrer Wohlfahrt und diese würdige Hochachtung für Sie persönlich zum Ausdruck zu bringen wünschen, ersuchen wir alle Sie, mein Herr, dieses kleine Geschenk als Zeichen der Anerkennung Ihrer vielen Verdienste anzunehmen. Es ist dies die vereinte Gabe Aller und vereint reichen wir es Ihnen als Geschenk dar. Es ist die Hoffnung von uns allen, dass Sie es mit ebensovielem Vergnügen gebrauchen werden wie wir es geben. Möge diese kleine Gabe Sie an die erhabenen Lehren erinnern, die Sie in den Orden in denen Sie eingeweiht wurden gelernt haben; doch möge sie Sie auch gleichzeitig erinnern, dass eben hier in der Fabrik viele warme Herzen für Sie laut schlagen, Herzen, die mit warmem Interesse und grossen Hoffnungen Ihnen eine erfolgreiche Zukunft wünschen."

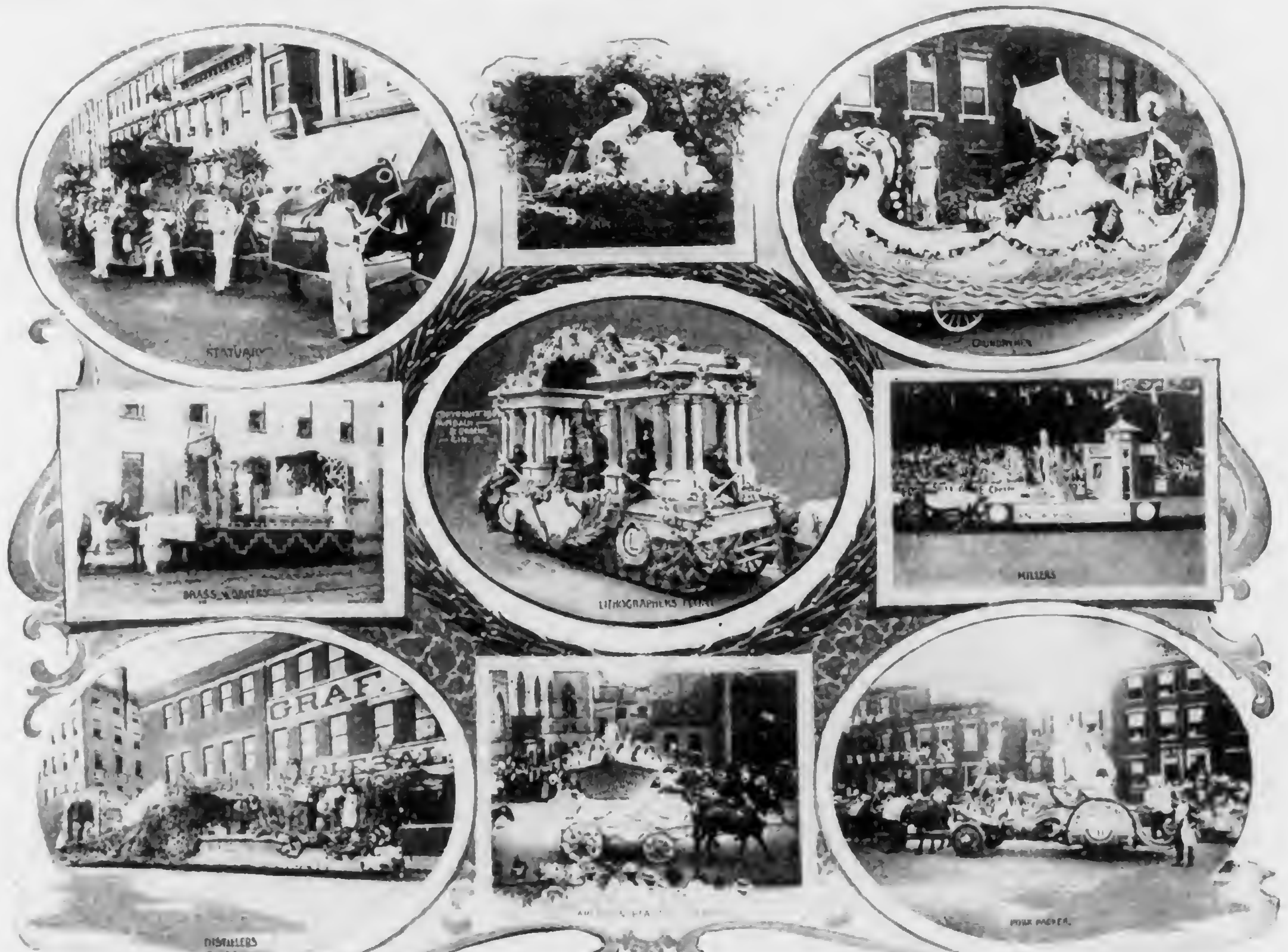
Herr Coldwell, nahm das Geschenk freundlichst an und bemerkte, dass die Männer lange genug mit ihm zusammen gewesen seien um zu wissen, dass er kein Redner sei. Er dankte den Angestellten herzlichst und versicherte seine Hörer, dass es keine Körperschaft gebe von der er eine Gabe halb so freudig entgegennehmen würde, als eben von den Angestellten dieser Fabrik.

Das Berlock ist aus Gold, in der Form eines Auges gefasst, es ist mit neun Diamanten und elf Rubinen besetzt. Die eine Seite stellt das Emblem der "Knights Templar" (Tempelritter) und die andere Seite das Emblem des 32 Grades der Schottischen Freimauerer dar; der Adler kann vermittelst Haken geöffnet werden und giebt die Abzeichen derselben.

Der längste Seil der je für Schleppzwecke gebraucht wurde, ist soeben für einen unterirdischen Distrikt in Glasgow angefertigt worden. Derselbe ist sieben Meilen lang, 4⅝ Zoll im Durchmesser und wiegt beinahe sechzig Tons. Er wurde in nathloser und ungesplissener Länge aus patentirtem Schmelzstahl hergestellt. Wenn an Ort und Stelle befestigt, wird dieser Seil einen kompletten Cirkel um die Stadt Glasgow bilden, den Clyde in seinem Laufe durchkreuzen und eine Schnelligkeit von 15 Meilen per Stunde machen.

THE AMERICAN AUTOMOBILE

American automobiles are gaining rapidly in favor with foreign buyers. In every part of the world American machines are found to-day, and the use of the commercial automobile is steadily increasing. In a recent issue of *Modern Methods*, an American publication, there appears an interesting interview with Mr William E. Metzger, president of the Tri State Automobile Association in which Mr. Metzger presents some of the interesting features of the American automobile industry, as follows



Courtesy of the Cincinnati [illegible]

TYPES OF DISPLAYS AND EXHIBITS THAT WILL APPEAR IN THE FLORAL SHOW, CINCINNATI, O., U. S. A.

Exhibits to appear at the Cincinnati Fall Festival to be held August 28th to September 22d. Great preparations are being made for this event. The purpose is to advertise Cincinnati as a Manufacturing and buying center. The great exposition hall will be used as well as Music Hall where all in-door attractions will be shown. This will be the fifth festival and in magnitude and importance will exceed all previous efforts. Both horse-drawn and self-propelled vehicles will be used and will be decorated to extreme limits.

"The automobile has come to stay There needs be no doubt about that The experimental stage is past and automobile manufacturing is being placed on a conservative business basis that insures its permanency We hear a great deal of talk of the history of the automobile being like that of the bicycle and dying out after a time as fads do. This is a mistake. There are not five men in 5,000 who have owned automobiles who will not continue to do so if their means will permit them to.

"The so called faddism is the salvation of the automobile business. Had it not been for the enthusiasm of the well to-do, the sporting blood as it were, of the wealthy, it is doubtful if the crude beginnings would have been improved upon as they have until the machines have reached their present state of perfection. Men of comfortable means, by their indulgence in their taste for speed and pleasure, have furnished the capital whereby the best brains of the country have evolved something worth having in the way of horseless carriages. The rich are reaping the benefits of their unintentional kindness, in getting machines that are elegant, stable, and less costly to maintain. There is another point of contrast between the bicycle business, and the automobile business and I should know, as I was in the cycle business at the birth of the automobile; and that is, the difference in the basis of the business. In the bicycle business, at its palmiest period, the cost of manufacture was not over 25 per cent. of the selling price. In the automobile business this is not true. Take any factory, no matter how great, and I will venture to say that with all the economy possible and consistent with good workmanship and good material, it will be impossible to produce machines for less than 50 per cent. of their selling price. By that I mean, the bare assembling of the parts, without taking into consideration overhead expenses, such as salaries, etc.

"To run a great automobile plant requires an enormous outlay of capital. Here we employ 1,400 men, and between here and another large plant which is now a part of our company's, we make about all there is to an auto, and when I tell you that we have stored 2,000 gas engines and that an engine factory is working night and day on our orders in order to keep up with the business, you can realize that I have reason to say that the automobile has come to stay. Acute business men are

Und dass seine optimistische Ansich eine richtige war ist allen nun offenbar klar geworden, denn die kleine Werkstatt mit nur wenigen Arbeitern hat sich in eine gar enorme Fabrik verwandelt in der wir alle heute thätig sind, von einer gehörigen Anzahl Angestellter unterstützt durch deren Arbeit und Treue es uns möglich wird, etwa 500 Mähmaschinen täglich fertigherzustellen.

"Wir besitzen nicht allein die grösste, sondern auch die bestausgestattete Mähmaschinenfabrik der Welt—und gestatten Sie, dass ich auch beifüge, die bestbemannte ihrer Art. Wir haben unser Unternehmen mit Nichts angefangen, und zu einer Periode, als England bereits sechzig Jahre lang Mäher fabrizirt hatte; heute dürfen wir uns der Thatsache rühmen die doppelte Anzahl aller Mäher herzustellen die von allen Fabrikanten Englands zusammen fabrizirt werden. Ich sage dieses wahrlich nicht in herausfordernder Weise, doch wünsche ich damit blos darzuthun, dass trotz der schweren Hindernisse die die meisten Männer entmuthigt hätten es uns dessenungeachtet gelang einen Erfolg im Augesicht sicherscheinender Niederlage zu erzielen, was einzig und allein aber durch das herzliche Einvernehmen und Mitwirken der ganzen Arbeiterforce nur möglich war.

"Die an der Leitung dieses Geschäftes stehen, waren zu jeder Zeit bereit dies anzuerkennen und Jedem würdiges Lob für aufrichtige und treue Unterstützung angedeihen zu lassen. Andererseits haben die Arbeiter es nie unterlassen ihre Beweise der Anerkennung über die Verantwortlichkeit und Leistungsfähigkeit der Leiter Ausdruck zu geben.

"Als vor etwa zwei Jahren es augenscheinlich wurde, dass Derjenige der solange unser aller Leiter war, bald berufen sein wird seinen Leitungsstab niederzulegen, hefteten sich unsere Blicke selbstverständlich auf seinen Erben und Nachfolger. Es gab nur einen Gedanken: "Wer soll diese schwierige Verantwortung unternehmen." Doch da Sie von vorne herein mit allen Einzelheiten der Arbeit so vollkommen vertraut waren und so riesige Fähigkeit dafür zu besitzen schienen, und da gleichzeitig eine so herrliche Aussicht der Möglichkeiten und thatsächlich eine Nothwendigkeit nach Ihnen vorhanden schien—so fiel die Wahl auf Sie. Sie erinnern sich vielleicht noch, dass die Direktion Sie mit aller Authorität bekleidete und Sie ersuchte Ihre alleinige Urtheilskraft in allen Sachen zu gebrauchen und eifrig versprach, Sie in allen Ihren Handlungen bestens zu unterstützen.

"Doch auch die Angestellten der Fabrik waren weitsichtig genug, Ihren Werth als Organisator und Direktor aufzufassen und anzuerkennen; sie lernten Sie, hochgeehrter Herr, bald schätzen, nicht allein für Ihr Interesse in deren persönlicher Wohlfahrt und Wohlergehen, doch auch gleichzeitig für Ihren aufrichtigen Eifer im Interesse der Gesellschaft, die Sie vertreten. Dies wurde bei mehreren Gelegenheiten und in verschiedener Weise zur Genüge bewiesen. Die grosse ganze Fabrikfamilie hat mich nun ersucht, diesen ihren Gefühlen in einigen Worten Ausdruck zu verleihen, für sie zu reden; und just als ich von dieser Ehre Gebrauch machen wollte kam mir der Gedanke von dem ältesten Mädschen, in der schönen Weihnachtsgeschichte, von Kate Douglas Wiggins in den Sinn. Als sie beauftragt wurde die ganze Zahl der vielen kleinen Kinder unter ihrer Obhut zu nehmen und darauf zu achten, dass sie sich ja recht hübsch am Weihnachtstische während des Weihnachtsdiners betragen, antwortete sie, dass sie überhaupt nicht mehr gehen wolle. Es dürfte schwer genug für sie selbst sein ihrer eigenen Manieren Herr zu werden, doch das Thun und Treiben einer ganzen Familie zu beaufsichtigen, das würde in der That viel zu viel für sie sein. In gleichem Sinne kann ich wohl meine eigenen Gefühle für Sie hier zum Ausdruck bringen, doch die Gefühle aller anderen Anwesenden auszusprechen ist mir wahrlich ganz unmöglich. Ich kann nur sagen, dass Alle hier lebhaftes Interesse für Sie und für Alles was in Ihrem Bereiche liegt stets zu Tage gefördert haben. Als Sie vor kurzer Zeit z. B. zum Präsidenten der Geschäftsmannschaft-Vereinigung erwählt wurden und als alle Zeitungen so herrliche Tribute über Sie und Prophezeihungen über die Zukunft dieser Vereinigung unter Ihrer hervorragenden Leitung brachten, schienen diese Berichte jeden Einzelnen zu beleben, stolzer zu machen, als ob es ein Kompliment für jeden selber wäre. Dann, wiederum, als vor wenigen Tagen das schreckliche Missgeschick über Sie hereinbrach und es schien als ob Sie Ihren einzigen Sohn dabei verlieren müssten, fühlte Jeder als ob die herandrohende Wolke auf ihn selber einbrechen würde; es war eine persönliche Trauer und herzliche Wünsche und aufrichtige Gebete stiegen auf für die Genesung des Knaben. Und nun, da die gütige Hand der Vorsehung dieses Krankheitsübel glücklich abgewendet, und Sie den theueren Kranken wieder unter Ihrem eigenen Dache hegen und pflegen können, freuen sich alle wieder mit Ihnen im Glücke einer schönen Zukunft.

"Da sie nun dieses Interesse in Ihrer Wohlfahrt und diese würdige Hochachtung für Sie persönlich zum Ausdruck zu bringen wünschen, ersuchen wir alle Sie, mein Herr, dieses kleine Geschenk als Zeichen der Anerkennung Ihrer vielen Verdienste anzunehmen. Es ist dies die vereinte Gabe Aller und vereint reichen wir es Ihnen als Geschenk dar. Es ist die Hoffnung von uns allen, dass Sie es mit ebensovielem Vergnügen gebrauchen werden wie wir es geben. Möge diese kleine Gabe Sie an die erhabenen Lehren erinnern, die Sie in den Orden in denen Sie eingeweiht wurden gelernt haben; doch möge sie Sie auch gleichzeitig erinnern, dass eben hier in der Fabrik viele warme Herzen für Sie laut schlagen, Herzen, die mit warmem Interesse und grossen Hoffnungen Ihnen eine erfolgreiche Zukunft wünschen."

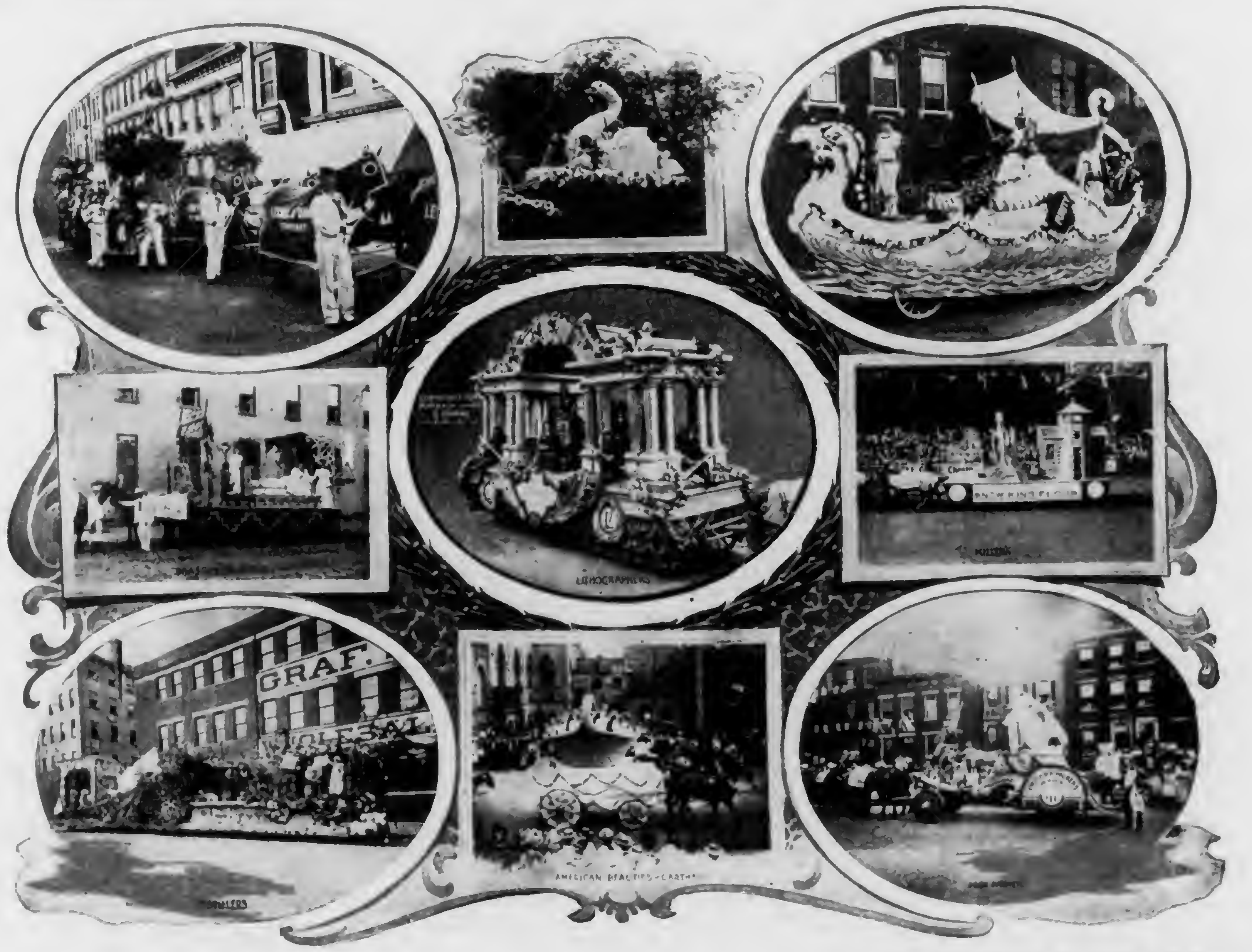
Herr Coldwell, nahm das Geschenk freundlichst an und bemerkte, dass die Männer lange genug mit ihm zusammen gewesen seien um zu wissen, dass er kein Redner sei. Er dankte den Angestellten herzlichst und versicherte seine Hörer, dass es keine Körperschaft gebe von der er eine Gabe halb so freudig entgegennehmen würde, als eben von den Angestellten dieser Fabrik.

Das Berlock ist aus Gold, in der Form eines Auges gefasst, es ist mit neun Diamanten und elf Rubinen besetzt. Die eine Seite stellt das Emblem der "Knights Templar" (Tempelritter) und die andere Seite das Emblem des 32 Grades der Schottischen Freimauerer dar; der Adler kann vermittelst Haken geöffnet werden und giebt die Abzeichen derselben.

Der längste Seil der je für Schleppzwecke gebraucht wurde, ist soeben für einen unterirdischen Distrikt in Glasgow angefertigt worden. Derselbe ist sieben Meilen lang, 4⅝ Zoll im Durchmesser und wiegt beinahe sechzig Tons. Er wurde in nathloser und ungesplissener Länge aus patentirtem Schmelzstahl hergestellt. Wenn an Ort und Stelle befestigt, wird dieser Seil einen kompletten Cirkel um die Stadt Glasgow bilden, den Clyde in seinem Laufe durchkreuzen und eine Schnelligkeit von 15 Meilen per Stunde machen.

THE AMERICAN AUTOMOBILE

American automobiles are gaining rapidly in favor with foreign buyers. In every part of the world American machines are found to-day, and the use of the commercial automobile is steadily increasing. In a recent issue of *Modern Methods*, an American publication, there appears an interesting interview with Mr. William E. Metzger, president of the Tri-State Automobile Association, in which Mr. Metzger presents some of the interesting features of the American automobile industry, as follows:



Courtesy of the Cincinnati Fall Festival Association Co.

TYPES OF DISPLAYS AND EXHIBITS THAT WILL APPEAR IN THE FLORAL SHOW, CINCINNATI, O., U. S. A.

Exhibits to appear at the Cincinnati Fall Festival to be held August 28th to September 22d. Great preparations are being made for this event. The purpose is to advertise Cincinnati as a Manufacturing and buying center. The great exposition hall will be used as well as Music Hall where all in-door attractions will be shown. This will be the fifth festival and in magnitude and importance will exceed all previous efforts. Both horse-drawn and self-propelled vehicles will be used and will be decorated to extreme limits.

"The automobile has come to stay. There needs be no doubt about that. The experimental stage is past and automobile manufacturing is being placed on a conservative business basis that insures its permanency. We hear a great deal of talk of the history of the automobile being like that of the bicycle and dying out after a time as fads do. This is a mistake. There are not five men in 5,000 who have owned automobiles who will not continue to do so if their means will permit them to.

"The so-called faddism is the salvation of the automobile business. Had it not been for the enthusiasm of the well-to-do, the sporting blood as it were, of the wealthy, it is doubtful if the crude beginnings would have been improved upon as they have until the machines have reached their present state of perfection. Men of comfortable means, by their indulgence in their taste for speed and pleasure, have furnished the capital whereby the best brains of the country have evolved something worth having in the way of horseless carriages. The rich are reaping the benefits of their unintentional kindness, in getting machines that are elegant, stable, and less costly to maintain. There is another point of contrast between the bicycle business, and the automobile business and I should know, as I was in the cycle business at the birth of the automobile; and that is, the difference in the basis of the business. In the bicycle business, at its palmiest period, the cost of manufacture was not over 25 per cent. of the selling price. In the automobile business this is not true. Take any factory, no matter how great, and I will venture to say that with all the economy possible and consistent with good workmanship and good material, it will be impossible to produce machines for less than 50 per cent. of their selling price. By that I mean, the bare assembling of the parts, without taking into consideration overhead expenses, such as salaries, etc.

"To run a great automobile plant requires an enormous outlay of capital. Here we employ 1,400 men, and between here and another large plant which is now a part of our company's, we make about all there is to an auto, and when I tell you that we have stored 2,000 gas engines and that an engine factory is working night and day on our orders in order to keep up with the business, you can realize that I have reason to say that the automobile has come to stay. Astute business men are

INTENTIONAL SECOND EXPOSURE

not going to pour their dollars into the erection of a fireproof plant, the purchase of expensive machinery, the employment of the best mechanical talent to be obtained, and into costly real estate, unless they not only believe, but are reasonably assured that the automobile business is a permanent one. The development of the automobile was the dream of my youth, and I must say that it has exceeded my fondest hopes in its rapidity."

"What is your view as to the constant straining after more power? Do you think the large cars have about reached a maximum?"

"I am inclined to think they have. The great army of automobile owners do not really need higher power than they are now getting in the average tourist cars. The only advantage to be gained by higher power is the exhileration of passing the other fellow on the hill and reaching the summit a few seconds ahead of him. The other fellow will climb the hill all right. I think the size of the cars will settle down to a moderate standard that will not be too costly to maintain. The maintenance of an automobile is a question that should be considered in a machine. The lighter the power the harder it is on the machinery."

"What has been done to solve the tire problem?"

"A great deal. The main thing is to have a larger air cushion. Larger tires are in demand on that account. It has been found that they mean a longer life to the tire, less wear and tear on the machine through jolting and more comfort in riding. They mean more rubber and a slight increase in the initial cost, but that is compensated for in the life of the tire. The accumulation of engines bespeaks a great faith in the continuance of the use of gasoline. But there is one feature of the automobile business that has a fascination for me and that is its commercial possibilities. I mean the manufacture of vehicles for commercial purposes.

"I once thought we had gone at the thing wrong side foremost and I urged the manufacture of vehicles for commercial purposes. Looking at it from the standpoint of a salesman, I saw wonderful possibilities. The possibilities are still there, but I now realize that it was wise to develop the machines through the pleasure end of the deal. It is doubtful if business men, with an eye to the saving of every cent possible, would have stood for the repeated changes made necessary in the evolution of the auto. It is my opinion, however, that the time is near when the commercial vehicle will command attention from the big business concerns and machines will be turned out that will be cheaper to keep than a team of horses and will be much more rapid for the delivery of goods. A machine never suffers from physical exhaustion, and though, like horses, it may be woefully abused, it may, with judgment in their handling, be made to do the work of horses in a ratio of five to one; one machine to do the work of five teams. The possibilities in this direction are unlimited and this is another argument sustaining the position I take that the automobile has come to stay and that its manufacture will form one of the most stable industries in the United States."

"How about the arrangement of automobile shows?"

"I think there should be one great show for the trade only. Then let the local shows go on at Detroit, New York and Chicago as usual. It is my belief that a national or international show will be held in 1907 for the trade only."

"As to the distribution of business, Mr. Metzger, are American machines meeting with favor abroad?"

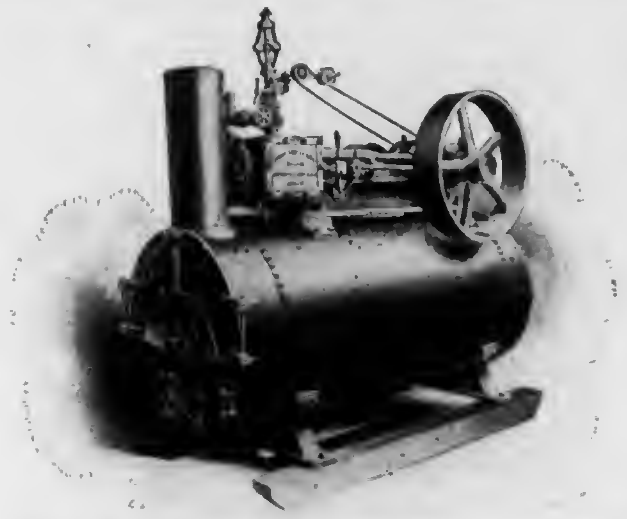
They are gaining in favor every day. Our foreign trade is increasing rapidly and we ship machines to all parts of the world. London is becoming an excellent market for American machines, but the automobiles made in the United States are being shipped to every quarter of the globe. The Pacific Coast points are now active buyers of automobiles, and more of them are going into the South than ever before. This is due to the general prosperity of the country. The South is making money rapidly, and is forging ahead in manufactures and agriculture at an unprecedented rate. All in all, it seems to me that the people of this nation have very little to complain of."

THE GEM OF THE CARNIVAL.

The prize-winning automobile at the Carnival of Roses at San Jose, Cal. The profusion of floral decorations, delicately arranged, created a most pleasing effect, and popular acclaim accorded the prize before the judicial announcement.

ELECTRICITY IN WIRE FENCES

The Department of Agriculture has been led by complaints from farmers to investigate the cause of the corrosion of wire fences. Experts have concluded that the cause of the trouble is a metallurgical problem. The older iron wire is said to be more durable than the steel wire more lately introduced. The results of the tests made seem to indicate that manganese in the wire may have something to do with the corrosion. Manganese dissolved in iron up to a certain amount increases the electrical resistance, but if the manganese is not uniformly distributed, electric currents may be generated in the wire when wet with rain, leading to corrosion by electrolysis. The deep pitting observed in corroded wire is said to be characteristic of electrolytic action.



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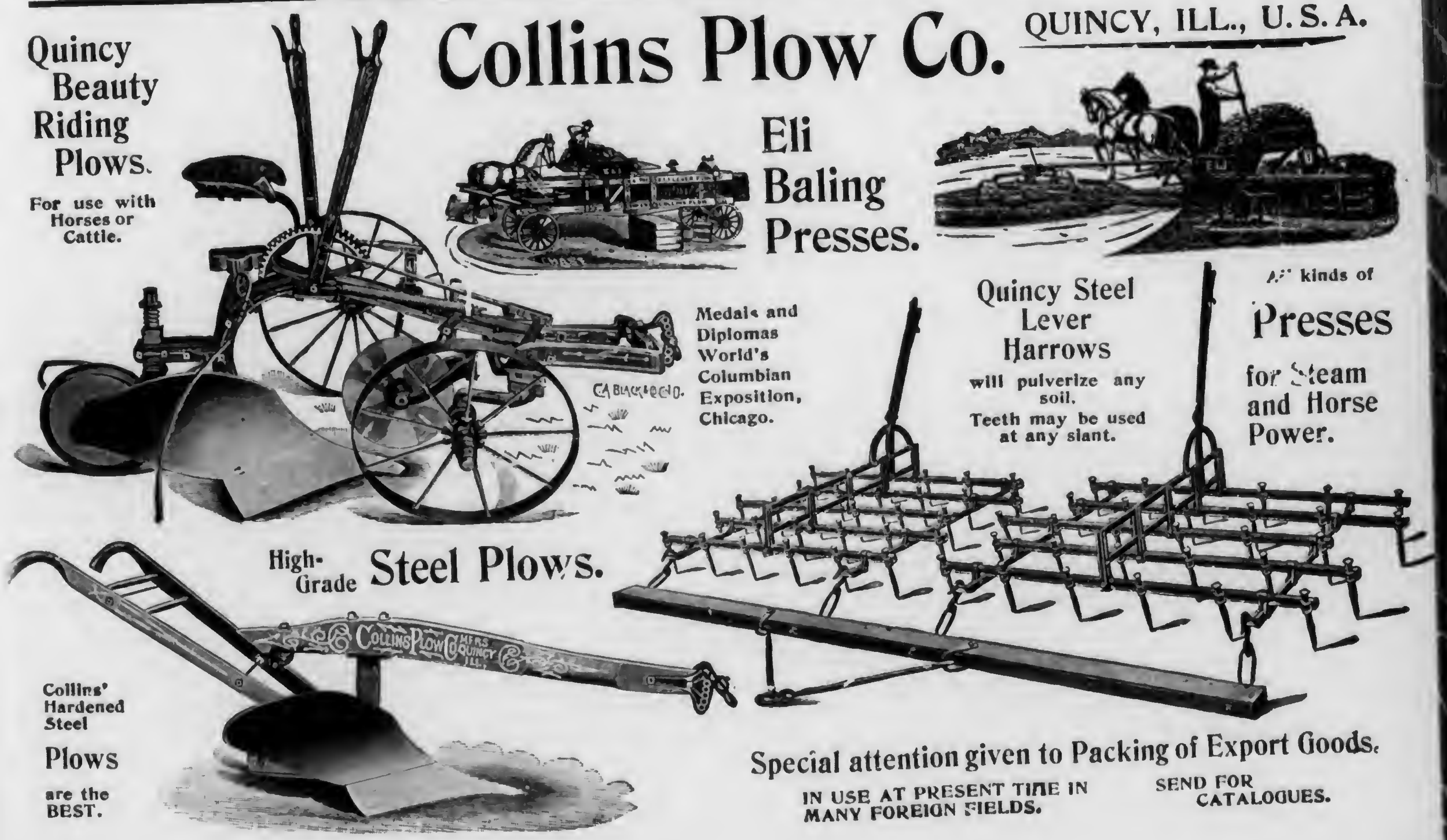

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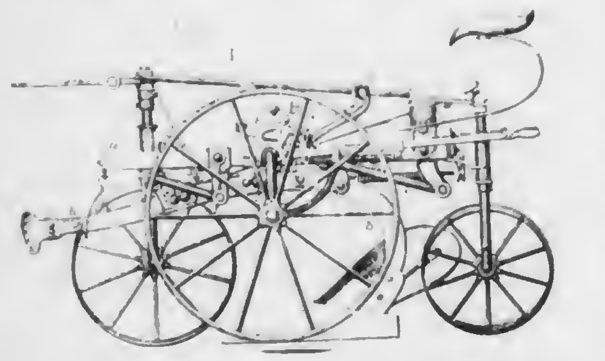
SOME RECENT INVENTIONS

The following recent inventions have been specially reported for THE EXPORT IMPLEMENT AGE by C. LeRoy Parker, Solicitor of Patents, 707 G Street, N. W., Washington, D. C.

Lifting Device for Gang and Sulky Plows

No. 812,273. F. J. Kelly. February 13, 1906.

The invention herewith shown relates to gang and sulky plows, and especially to the means employed for raising and lowering the plows; and the object of the invention is to make a device for raising and lowering such plows that shall be easier and more efficient in operation that the ordinary device; that shall when desired be capable of operation by either a foot or hand lever, or both combined, and that shall be more economical in construction.

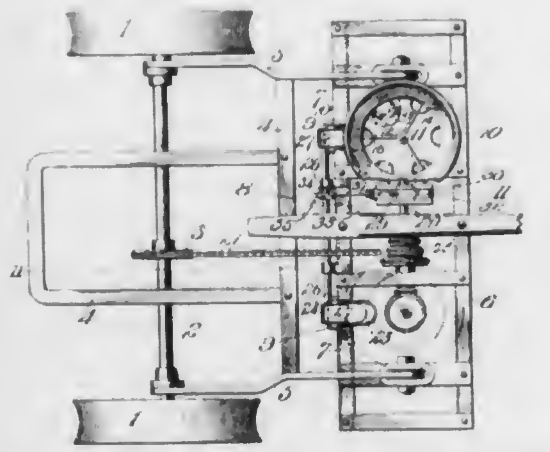


The invention consists of a plow-beam, a frame from which said beam is suspended, a shaft on the frame having a serrated bearing face, a bail operatively connected adjacent its respective ends to said shaft and beam, a lever for adjusting the beam, having a serrated bearing-face, adapted to engage the complimentary face of the shaft whereby the adjustable connection is formed, and means for retaining the beams in adjustable positions.

Potato-Planter

No. 812,695. Henry J. Springer, February 13, 1906.
Assignor to Springer Bros. Mfg. Co.

The recently patented potato-planter illustrated in the accompanying drawing is claimed to provide means in the chutes of the planter by which the potatoes are received as they are fed from the seedboxes and from which the potatoes are dropped to descend through the chutes at the proper time and to the ground at the proper intervals of space. The invention also is designed for adjustably holding the fixed carrier wings in the seedboxes by which the potatoes are carried to the outlets from said boxes.



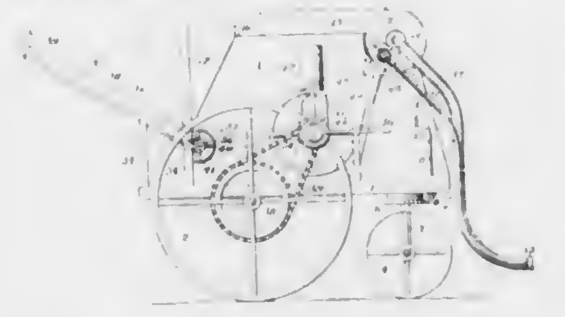
The invention embodies a chute, a rock-shaft, a valve carried by said rock-shaft and arranged to operate in said chute, a slide having connection with said rock-shaft, a driven-shaft having a finger arrangement for engagement with said slide, and a retractile spring connected to said rock-shaft for returning it to normal position after it has been oscillated by said slide.

In the operation of the dropping mechanism the potatoes are discharged from the seedboxes and fall into the chutes (23) to rest upon the valves (27). Each time that a proper point for the potatoes to be dropped is reached during the travel of the planter one of the fingers (29), carried by the driving-shaft (20), passes through the slot in the (30) and enters the slot in the slide (32). Immediately after it enters the slot in the slide it engages the slide and reciprocates it forwardly in said guide, thereby exerting a pull upon the throw-rod (34). The throw-rod is therefore caused to effect a pull upon the rocking arm (35)as a result of which the rock-shaft (24) is oscillated in its bearings to tilt the valves (27) downwardly and rearwardly in order that the potatoes previously upheld thereby may fall through the chutes (23) to the ground . After reciprocating the slide (32) forwardly to the desired extent, the finger that has engaged it slips out of the slot in the slide, thereby freeing it. The retractile spring (36) then returns the parts to their normal position ready for the next operation, as before.

Cotton-Picking Machine

No. 812,865. Joseph Nisbet. February 20, 1906.

The invention in the figure was recently patented by a Mississippian and relates generally to a self-propelled machine for picking and sorting cotton, for picking it from several rows at the same time, and for accomplishing these steps very rapidly.



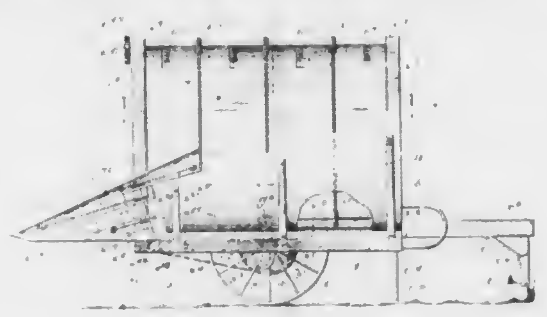
The machine consists of a suction-tube having a mouth for receiving cotton from the boll, shears located adjacent to said mouth for assisting and separating the cotton from the plant, an engine for driving the machine, and mechanism connected up between the machine and the movable blades of the shears, the mechanism consisting of gearing, a flexible shaft connecting said gearing and one of the blades of said shears, and a driving connection between said engine and said gearing.

Corn Cutter and Shocker

No. 813,851. Elmer Berry and Homer S. Berry. Feb. 27, 1906

It is claimed that the corn cutter and shocker shown in the accompanying figure is easily operated and not liable to get out of order. By cutting only one row of corn and elevating the corn over the bull-wheel the side draft is designed to be reduced. The shock being already tied when the cradle is tilted, will remain in an upright position, and the waste of broken blades from frequent handling is avoided. The provision of the extension on the track permits the entire disengagement of the shock from the machine before it is up-ended, thus allowing a minimum height of elevator.

This machine has been recently patented and consists of a frame, dividing boards on the frame, cutting means between the dividing boards, conveying means on the dividing-boards, means for engaging the butts of the stalks at the inner end of the dividing-boards for receiving the cut stalks, a track on the frame, a hinged extension on the track at the rear of the frame, means for supporting the free ends of the hinged extension, a carriage slidably mounted on the track, a turn-table on the carriage, a cradle hinged to the turn-table, means for conveying the cut stalks from the trough to the cradle, means for supporting the frame and for actuating the moving parts, comprising a bull-wheel journaled in the frame.



In operation the dividing-boards pass on each side of the row of corn, and the stalks chains on the grain-boards and the rearward extensions pass the stalks to the rear until the butts engage the pin. The stalks fall into the trough and are elevated by the lug-chains to the top of the supports and into the horizontal conveyer, which drops them into the cradle. When a sufficient number of stalks to form a shock have been dropped into the cradle, they are secured together, the hook is released, the shoe for supporting the rear end of the frame is dropped, and the carriage is run out upon the extension of the track. The cradle is then given a quarter-turn to the right and is tilted to up-end the shock of corn.

THE GIFT OF THE NILE

In his presidential address to the engineering section of the British Association during its South African meeting, Colonel Moncrieff dwelt upon the fact that Africa is especially dependent upon irrigation, and pointed out that modern engineers have not devised any essentially new method of supply thirsty lands with water. He referred to the statement of Herodotus that Egypt is the gift of the Nile, and mentioned the latest conclusion as to the source of the Nile floods. This, he said, is undoubtedly in Abyssinia. The observations of Captain Lyons have finally demonstrated that the rains falling in the immense basin of the White Nile are of no importance to Egypt. From June to August the Nile rises, and afterward sinks until once more the floods come down the Blue Nile from Abyssinia. Egypt is simply an irrigated valley 780 miles long, and apart from the Delta, which is 100 miles long, this valley is nowhere more than 15 miles wide, and in some spots less than a mile.

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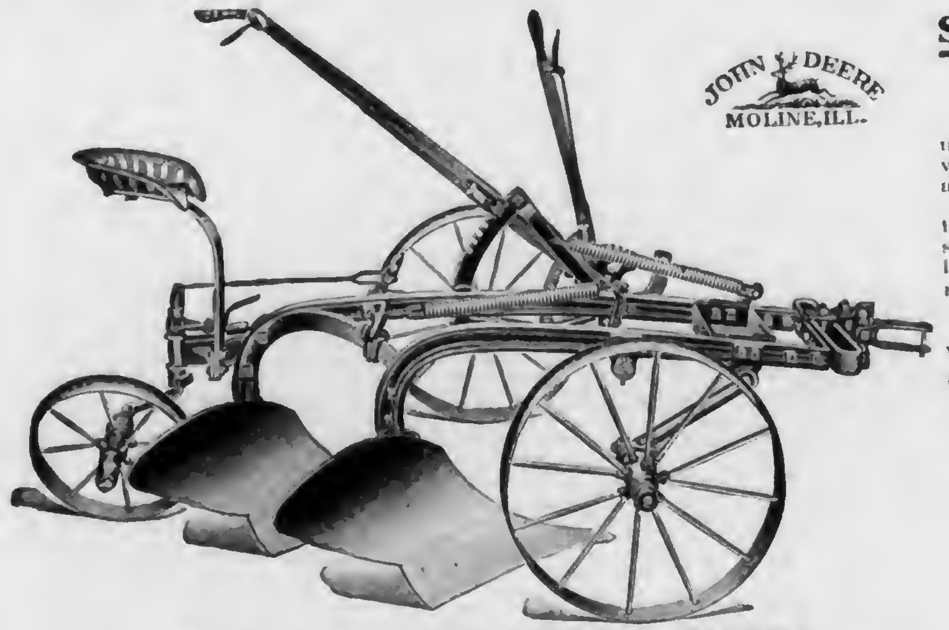

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IRON VS. STEEL

During the last decade of the century just closed, the advance in the manufacture of steel and the substitution of this metal for the purposes previously held by wrought iron, caused capable observers to think that the latter would soon play but an unimportant part in metallurgy. Many of the most important firms in the industry—including Carnegie's—withdrew entirely from puddling work. Wherever possible, steel was made to take the place of iron, and it was declared that the substitution of a homogeneous, well-made metal like steel, for a non-homogeneous metal like wrought iron, which is apt to be full of flaws, was clearly a step in the right direction. But the first years of the twentieth century have marked a distinct trend back to the use of wrought iron. Extended experience with steel has shown that for certain constructions, it is not proving as satisfactory as was expected. Some years ago, the iron nail was practically driven out of the market by the cut-steel nail; many consumers have found cause for complaint in the fact that the latter bends readily, and it has also been demonstrated that structures made with steel nails would not hold because the nails rusted off under the heads very rapidly. For scaffolding and similar purposes, the steel nail has less holding power than the iron one, and a growing demand for the old style of nail has arisen. There is also a general outcry among tinsmiths and roofers that the galvanized and tin sheets of the present do not last anything like as long as those made twenty-five years ago. For wrought iron pipe, notwithstanding the higher cost of production, the demand has been sufficient to employ several important works exclusively for the manufacture of this product. For boiler tubes, steel is not regarded as satisfactory, and most locomotive tubes are now made from charcoal iron. It is a striking illustration of this new tendency that one of the largest steel manufacturers in the country will not permit a steel tube to be used in one of the boilers of his factory, or a steel sheet on the roofs of his buildings.

When subjected to the bending stress, also, iron and steel do not behave alike. It is asserted by an authority that a well-made car axle of iron, the metal of which will show in tensile strength 50,000 pounds per square inch, will endure the same fiber stress as steel of 80,000 or 85,000 pounds tensile strength. But the most prominent instance in which steel has been weighed in the balance and found wanting, is in the manufacture of fence wire.

The industry of making steel wire fencing has developed into enormous proportions. Hundreds of patents have been issued for devices for connecting the wires, and any traveller through the West, cannot fail to note the countless miles of fencing used to enclose ranches, etc. As wood becomes scarcer, wire fence will grow in importance, and its durability becomes a serious question.

AS THEY APPEARED BEFORE THE EARTHQUAKE.

View before the earthquake of the Studebaker wholesale and retail repository and repair shop, San Francisco, Cal., destroyed by fire April 18th, 1906. The Studebaker Bros. Mfg. Co., of San Francisco, have opened temporary repositories at Sacramento, Oakland, Stockton, and an office at 2444 Jackson street, San Francisco, Cal.

PETROL MOTOR SKATES

Automobile skates are the idea of one Constantini of Paris, and they are realities. They consist of a foot plate mounted on four rubber tired wheels, while a petrol motor occupies the middle space. The foot plate can be adapted to the foot just as an ordinary roller skate, but the wheels are of a much greater diameter. It is said to work well and to have attracted much attention in Paris. There are two district parts, first, the pair of skates proper, and second, the belt worn by the operator and containing a small, flat petrol tank. An easily detachable rubber tube connects the tank to the carburetor on each skate, and near the tank are the valves for controlling the feed. It the most recent type of skate the battery and spark coil are placed in a small metal box with sliding cover, which is fitted on the back of the skate against the motor case. The steel foot plate is light, and is hinged in the middle for steering. Each skate carries in an inclined position a small air cooled petrol motor of the unsual four stroke cycle type. Fixed on the motor is a small carburetor, and under the motor is the cylindrical exhaust muffler. The driving wheels of the skate are mounted direct upon the motor crank shaft. The steering wheels in front are mounted on an axle which turns about a central pin, the latter, being fixed in a bracket plate, which is screwed to the motor cylinder. The wheels carry solid rubber tires which have a narrow tread. A flexible cable connects with the ignition shifting mechanism and is operated by a handle on the belt. The current can be cut off by a switch. The operator puts on the belt and connects the petrol tube and ignition cable to the skate. Then he switches on the current and opens the gasoline feed, pushing the skate with the foot so as to start the motor. He slows up when desired by shifting the ignition, cutting off the current or lifting the rear wheels from the ground. The skates can be used on a floor or smooth ground, or a good piece of smooth road. Fifteen to twenty miles an hour can be made by the little Constantini motor.

Courtesy of The Merchants Guide, Philadelphia.

UNIVERSITY OF CALIFORNIA.

From the Conservatory, showing the Botanical Gardens which contain some of the rarest plants in the world. The University is located at Berkeley, Cal., across the bay from San Francisco, and was badly shaken up by the earthquake.

Export Implement Age

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FEATHER RIVER RESERVOIR

Feather river, in northern California, will have the next greatest reservoir in the world. A 300,000-horse-power electric power plant is to be formed by ultilizing the water of Feather river to form a reservoir which will be second only to the gigantic reservoir at Assuan on the Nile. The stupendous size of this electric project can scarcely be understood until it is known that the power from these monster stations is expected eventually to run the railroads, light the towns, and turn the factory wheels in all the cities of the Sacramento valley and around the bay of San Francisco. Two transmission lines, each 175 miles in length, will be erected and so arranged that in case of an accident to one, an automatic switch will throw the current on the other.

PEACE, PROSPERITY AND ROSES.

Annual Flower Carnival at San Jose, Cal., the City of Roses, where Beauty and Youth appear bedecked with floral wealth. A Tally-Ho laden with its precious freight of school girls, drawn by six flower-decorated horses and led by six uniformed boys afoot and flanked by a mounted guard of boys.

AMERICAN VEHICLES IN ARABIA

Consul Masterson, of Aden, gives the import statistics of vehicles at that Arabian city during 1905, as follows:

There were imported into Aden last year $11,000 worth of carriages, carts and parts thereof. The United States shipped three-fourths of these vehicles, India supplied $1,063 in values, and Europe the balance, or $1,580. The reason why American hickory vehicles are most extensively purchased is because they are the only ones that will stand the hot, dry climate for any length of time. All the 150 public carriages used in Aden came from the United States, and are of light construction in order to pull four passengers with one horse. American victorias are popular. Some American carts are also used. American made harness is also largely in use, as other foreign makes are too cumbersome and expensive.

VASTNESS OF NEW YORK

New York is to the United States, says the Kansas City *Star*, what Westminster Abbey is to the British Empire, the ultimate expression of the genius and character of the people, its mere vastness like pebbles from the face of a cliff. It demands the iambics of a Milton. Any man who says that New York, on a first view, does not overwhelm him with magnitude and delight him with its beauty must be a very small man indeed.

And it is surpassingly beautiful. Even the Flatiron Building is that. Photographs of the building are meaningless. It is an architectural evolution, the only possibility for the existing surroundings, neither ugly nor pretentious. And that is true of every other of the great hotels and offices and stores that march down Broadway and stand sentinel in Park Row. The visitor who would attempt to criticise this place or compare it with any other city anywhere, at first sight, would play a tin whistle in a cathedral.

And next to the vastness of the city its interminable streets, its roofs that seem to support the sky, is its fresh cleanness. The streets seem scrubbed and polished, the buildings holystoned, the people newly risen. If they are fagged or overworked they don't show it. If they are hurried they are never inconsiderate of strangers, if they are broken by misfortune their eyes are never red with weeping, if they are the wastrels of constant pleasure they are never gross and always gracious. They are, for simple Western folk, good people to meet and cheerful people to part from, just as their city is a place of engrossing splendor to wander in and marvel at, and a place, too, that it is just as well to journey from before it overwhelms the untaught pilgrim and makes of him one of its countless slaves.

It is the power house of America, but the fuel and the men come, after all, from the limitless West, where the corn and oil are so abundant and the country grasses grow.

They sing the requiem of the mighty dead behind the great rood screen of the noble English church, but by day and night to every window of New York there rises the sonorous note of its countless traffic blended and musical as the noise of rocking surf on a storm-swept coast. Which may be poor poetry, but it is good fact. New York cannot be taken in detail as a first impression. It is too big for the focus of any camera. It baffles ordinary language in describing it. Words tinkle down reached without conscious effort and perfected by the inevitable process of time. They have Chattam's bones in the Abbey, but hidden away in Wall Street, gray with age and silent, is the hall where George Washington took the first oath of office.

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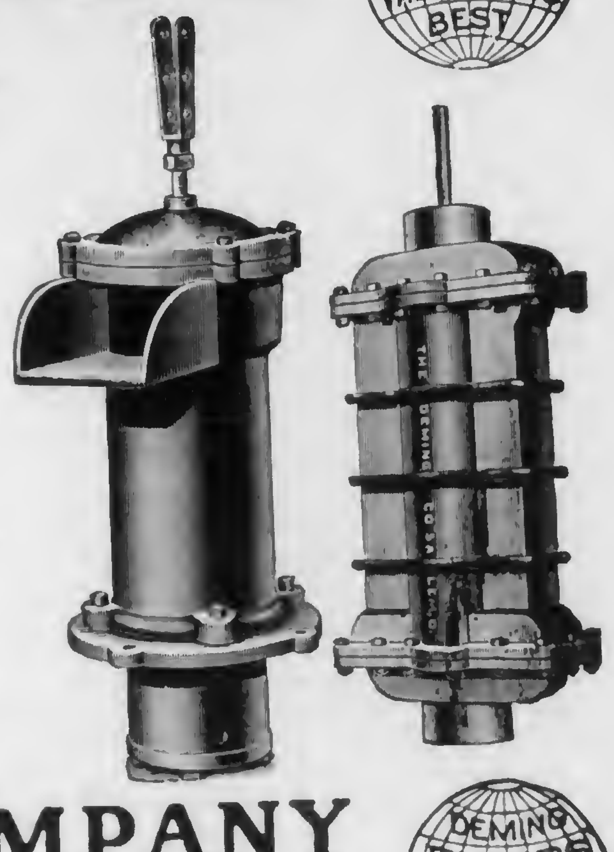

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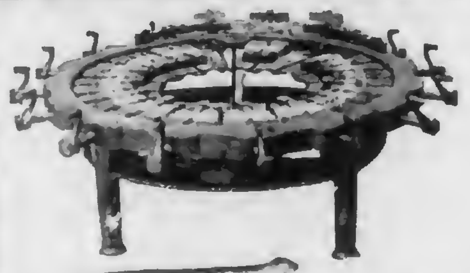

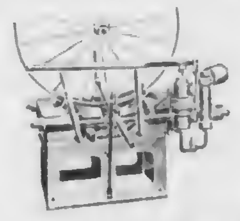

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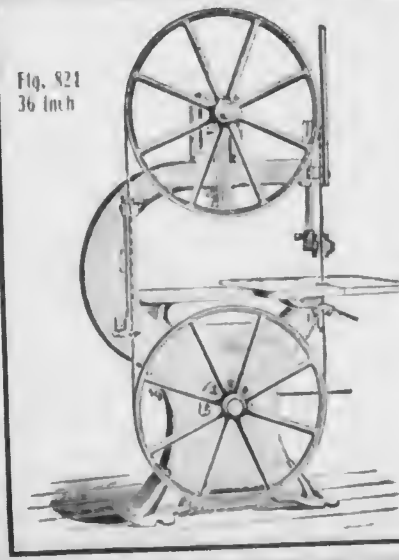

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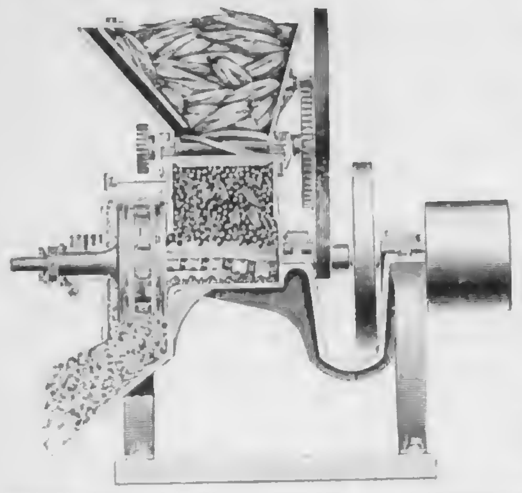

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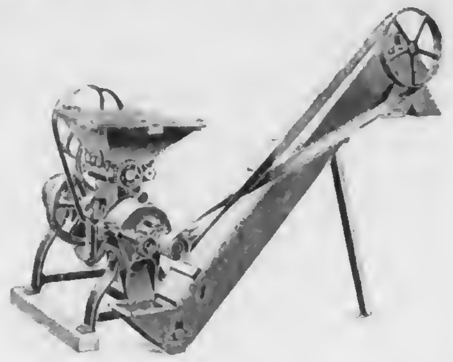

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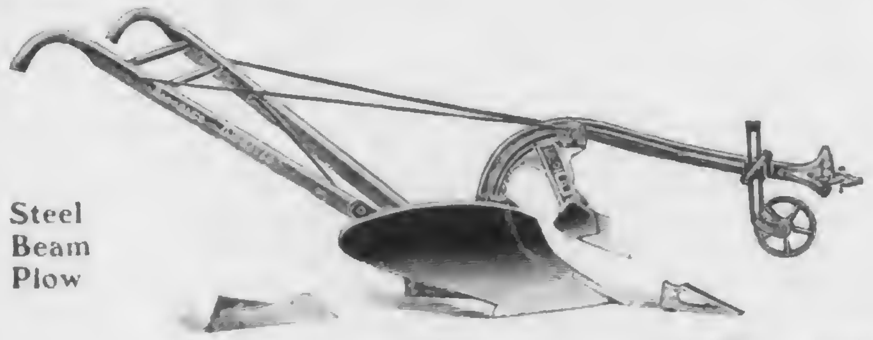

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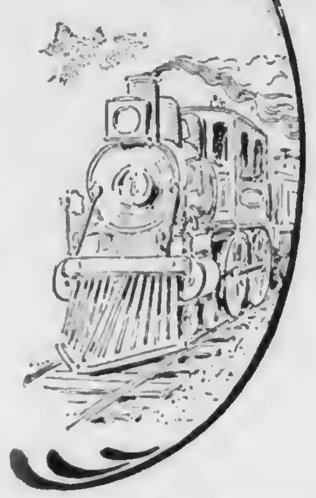

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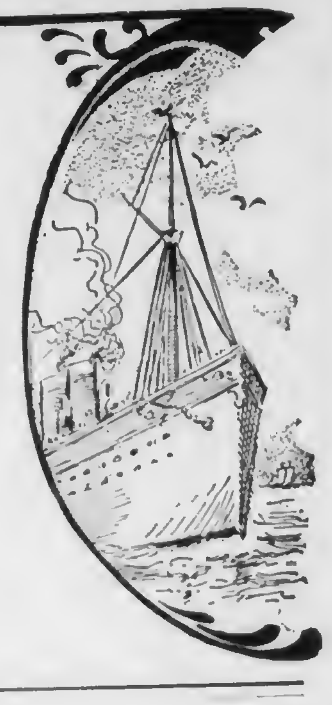

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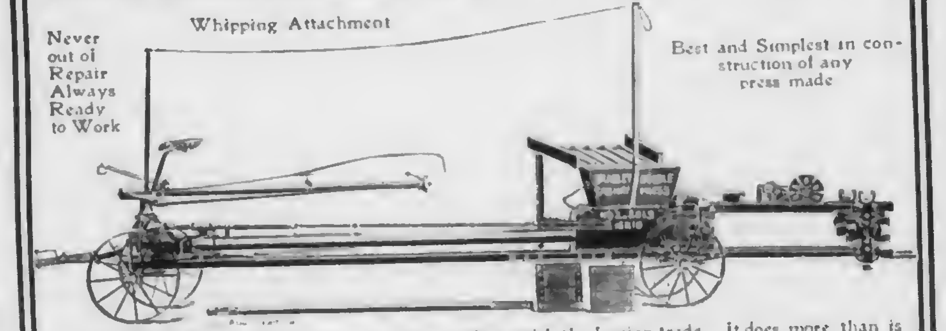

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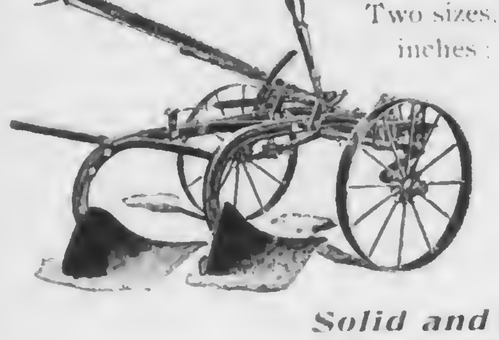

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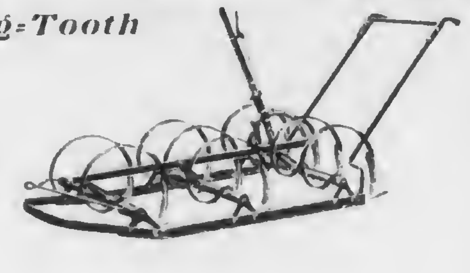

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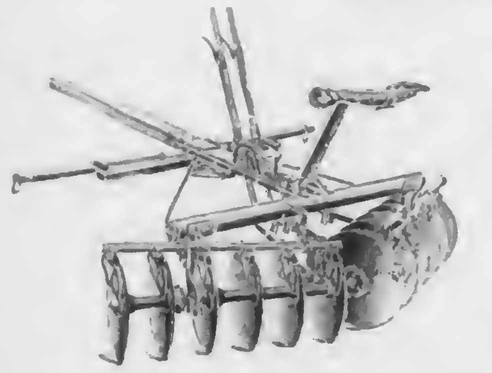

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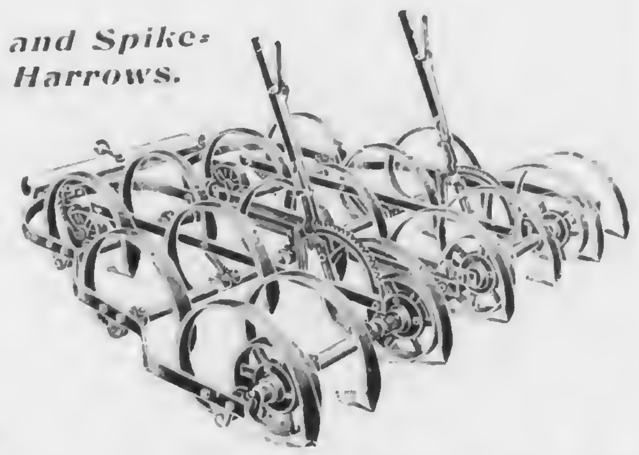

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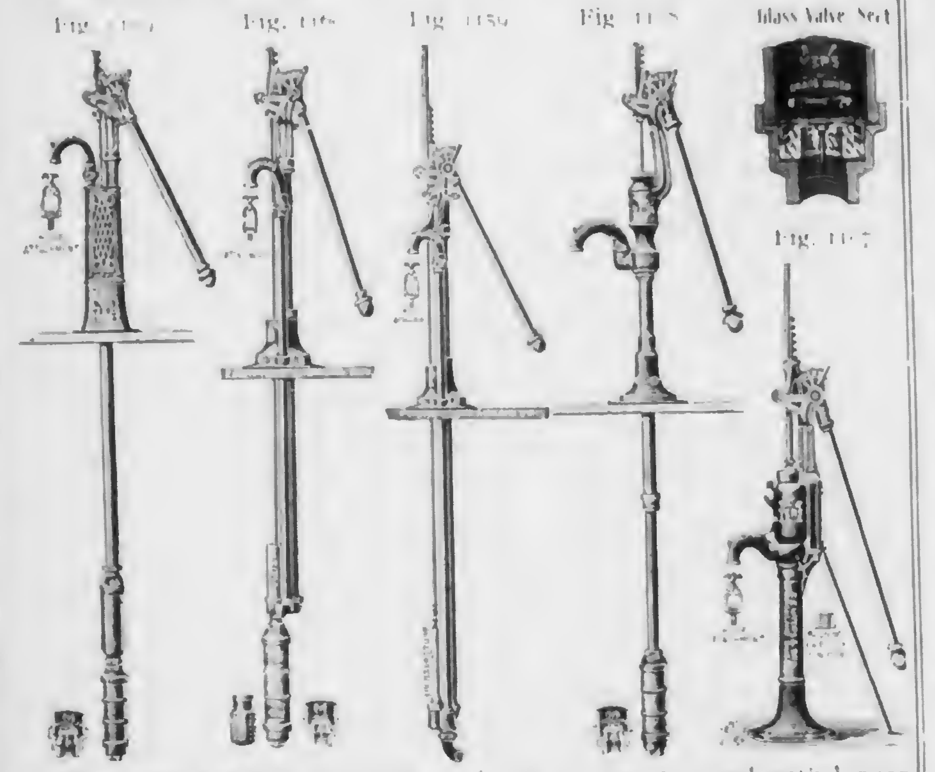
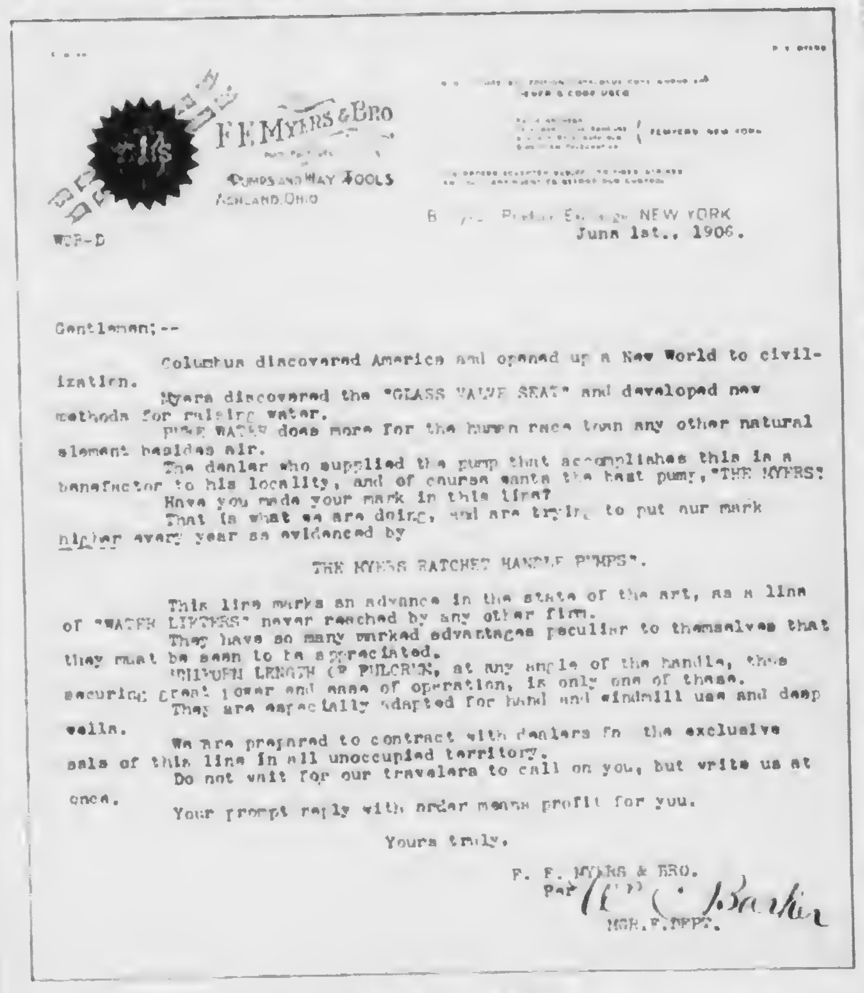
Factory: CANTON, OHIO.

MYERS RATCHET HANDLE PUMPS



They are adapted for deep well use, or can be used with larger cylinder, pumping greater quantity of water for wells of the same depth, on which a smaller cylinder is used in connection with the ordinary pump.

F. E. MYERS & BRO. ASHLAND OHIO


F. E. MYERS & BRO
PUMPS AND HAY TOOLS
ASHLAND, OHIO

B 21 Produce Exchange NEW YORK
June 1st., 1906.

WCP-D

Gentlemen;--

Columbus discovered America and opened up a New World to civilization.

Myers discovered the "GLASS VALVE SEAT" and developed new methods for raising water.

PURE WATER does more for the human race than any other natural element besides air.

The dealer who supplied the pump that accomplishes this is a benefactor to his locality, and of course wants the best pump, "THE MYERS"

Have you made your mark in this line?

That is what we are doing, and are trying to put our mark higher every year as evidenced by

THE MYERS RATCHET HANDLE PUMPS".

This line marks an advance in the state of the art, as a line of "WATER LIFTERS" never reached by any other firm.

They have so many marked advantages peculiar to themselves that they must be seen to be appreciated.

UNIFORM LENGTH OF FULCRUM, at any angle of the handle, thus securing great power and ease of operation, is only one of these.

They are especially adapted for hand and windmill use and deep wells.

We are prepared to contract with dealers for the exclusive sale of this line in all unoccupied territory.

Do not wait for our travelers to call on you, but write us at once.

Your prompt reply with order means profit for you.

Yours truly.

F. E. MYERS & BRO.
Per W. C. Barker
MGR. F. DEPT.

EXPORT OFFICE
B 21 Produce Exchange, New York, U. S. A.

Directory for Buyers.

The names of firms given below, together with the goods mentioned, are arranged for the convenience of buyers. Their products are given in the English, French, Spanish and German languages. These establishments are among the leading ones in the United States, are strictly reliable, have extensive facilities and are prompt in transacting business. They fully understand the export trade and carefully look after all foreign orders. The EXPORT IMPLEMENT AGE is kept on file in their offices, and any mention of the journal will be an incentive to even greater promptness on their part in obliging you. Inquiries from foreign buyers desiring information relative to American agricultural machinery or implements addressed to them will be given careful and prompt attention. Write in any language you prefer.

Rèpertoire à l'Usage des Acheteurs

Les maisons ci-dessous et les produits mentionnés ont été classés dans cet ordre pour la commodité des acheteurs de langues anglaise, française, espagnole et allemande. Ces établissements sont parmi les principaux des Etats-Unis, ils sont absolument sérieux, ils possèdent de grandes facilités, sont prompts en affaires. Ils connaissent à fond le commerce d'exportation et donnent tous leurs soins à l'exécution des commandes qui leur viennent de l'étranger. Ils conservent une collection de l'EXPORT IMPLEMENT AGE dans leurs bureaux, et la simple mention de ce journal stimulera davantage encore, si possible, leur zèle et leur promptitude à obliger leurs clients. L'EXPORT IMPLEMENT AGE, de son côté, donnera une prompte attention aux demandes de ronseignements sur machines et instruments agricoles américains, que peuvent lui adresser les acheteurs de l'étranger. Ecrire dans la langue que l'on préfere.

Directorio para los Compradores.

Los nombres de los artículos que fabrican las firmas ó casas mencionadas á continuación se dan, para conveniencia de los compradores, en los idiomas inglés, francés, español y alemán. Esos establecimientos, que se cuentan entre los principales de los Estados Unidos, están completamente acreditados, son dignos de toda confianza y tienen las mayores facilidades para ejecutar y despachar con prontitud todos sus negocios. Conocen á fondo el comercio de exportación y atienden con el mayor esmero à todos los pedidos que reciben del extranjero. Los números del EXPORT IMPLEMENT AGE se coleccionan en sus oficinas, y toda referencia á esta revista es un incentivo para atender con mayor prontitud aun á vuestros requerimientos. Todos los informes que pidan los compradores del extranjero serán suministrados á la mayor brevedad por esos fabricantes sobre la maquinaria agrícola é instrumentos de labranza americanos. Escribidles en cualquier idioma que prefiráis.

Firmen-Verzeichnis für Käufer.

Die Erzeugnisse der unten genannten Firmen sind für die Bequemlichkeit ausländischer Käufer in englischer, französischer spanischer und deutscher, Sprache hier wiedergegeben. Genannte Etablissemente gehören zu den bedeutendsten in den Vereinigten Staaten; sie sind in jeder Weise zuverlässig, besitzen ausgedehnte Facilitäten und erfreuen sich eines ehrenvollen Rufes. Alle von ihnen unternommenen Geschäftstransaktionen werden in promptester Weise zur Ausführung gebracht. Jedes hierin genannte Haus ist mit dem Exporthandel wohl vertraut und um auswärtige Aufträge eifrig bemüht. Das EXPORT IMPLEMENT AGE wird von all diesen Firmen gelesen, dient ihnen sozusagen als Informations-Register und dürfte somit eine Angabe dieses Journals bei event. Waarenbestellung nur zur Anregung grösserer Promptheit dienen, um p.p. Käufern in bestmöglicher Weise entgegenkommen zu können. Jede auswärtige Anfrage hinsichtlich amerikanischer landwirthschaftlicher Maschinen und Geräthe wird nicht allein prompte, sondern auch stets sorgfältige Aufmerksamkeit erhalten. Interessenten können sich jeder beliebigen Sprache zur Korrespondenz bedienen.

Ambulances
Carros de hospital
Krankenwägen (Ambulanzen)

Baling Presses (Hay, Straw, Etc.)
Presses à foin, paille, etc.
Prensas de Embalar (Heno, Paja, etc.)
Ballen Pressen (für Heu, Stroh, u. s. w.)

Bradley Mfg. Co., David, Bradley, Ill.	1
Collins Plow Co., Quincy, Ill.	29
Ertel Co., George, Quincy, Ill.	6

Beet Implements (Planting, Cultivating and Harvesting)
Betteraves (Instruments pour la culture des)
Instrumentos para el Cultivo de la Remolacha (Sembradoras, Cultivadoras y Cosechadoras)
Rübengeräte (zum Pflanzen, Pflügen und Ernten)

Moline Plow Co., Moline, Ill.	6

Binders, Self (Wheat, Rye, Oats, etc.)
Lieuses Automatiques (Blé, Orge, Avoine, etc.)
Agavilladoras Automáticas (Trigo, centeno avena, etc.)
Selbstbindemaschinen (für Weizen, Roggen, Hafer u. s. w.

Boilers.
Chaudières.
Calderas.
Kessel.

Leffel & Co., James, Springfield, Ohio	29

Bolts and Nuts.
Boulons et écrous.
Pernos y Tuercas.
Bolzen und Muttern (Mutterbolzen)

Columbus Bolt Works, Columbus, Ohio	36

Brakes (Vehicle)
Retrancas (Vehículo)
Frein (de Voiture)
Bremsen (für Fahrzeuge)

Potter Co., The Morgan, Fishkill on Hudson, N. Y.	3

Carriages
Voitures
Carruajes
Kaleschen und Wagen

Dapson & Wolf, Oneida, N. Y.	3
Studebaker Bros. Mfg. Co., South Bend, Ind.	36

Carriage Cloth
Wagentuch
Paño de carruaje
Drap de Voiture

Fairfield Rubber Co., The, Fairfield, Conn.	5

Carriage Materials
Articles pour voitures
Materials for Carriages
Wagenmaterial

Carts (Riding)
Charrettes (à siège)
Carretones (de Montar)
Frachtkarren (Reitkarren)

Dapson & Wolf Oneida, N. Y.	3

Cider and Wine Presses
Pressoirs à vin et à cidre
Prensas para Hacer Cidra y Vino
Kelterapparate für Wein und Apfelwein

Lansing Wheelbarrow Co., Lansing, Mich.	29

Clothes Washing Machines
Linge (machines à laver le)
Máquinas de Savar Ropa
Wäsche Waschmaschinen

"1900" Washer Co., Binghamton, N. Y.	35

Coal Cars
Charbon (wagons pour)
Carros para Carbón de Piedra
Kohlenwaggons

Lansing Wheelbarrow Co., Lansing, Mich.	29

Coal Shutes
Charbon (Dalles à)
Canales para Descargar Carbón de Piedra
Kohlen Lade-Rinnen

Lansing Wheelbarrow Co., Lansing, Mich.	29

Corn Crushers
Mais (Concasseurs de)
Trituradoras de Maiz
Mais Zerquetschmaschinen

Sprout, Waldron & Co., Muncy, Pa.	8

Corn Harvesters
Mais (Moissonneuses de)
Cosechadoras de Maiz
Mais Erntemaschinen

Standard Harrow Co., Utica, N. Y	8

Corn Huskers and Shredders
Mais (Instruments à enlever et à déchirer les bractées du)
Desgranadoras y Picadoras de Maiz
Mais Enthülsemaschinen und Auswerfapparate

Bradley Mfg. Co., David, Bradley, Ill.	1

Corn Planters (Hand)
Mais (Semoirs de, à main)
Sembradoras de Maiz (A Mano)
Maispflanzer (für Handbetrieb)

Ohio Cultivator Co., The, Bellevue, Ohio	31

Corn Planters (Horse)
Mais (Semoirs de, à cheval)
Sembradoras de Maiz (para Caballo)
Mais Pflanzmaschinen (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill.	
Moline Plow Co., Moline, Ill.	

Corn Shellers (Hand)
Mais (Egrenoirs de, à main)
Descascaradoras de Maiz (de Mano)
Mais Pflanzmaschinen (für Handbetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Corn Shellers (Power)
Mais (**Egrenoirs de**), á énergie mecanique
Descascaradoras de Maiz (para Fuerza mecánica)
Mais Pflanzmaschinen für Pferdebetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Cotton Planters
Coton (Semoirs de)
Sembradoras de Algodon
Baumwoll Pflanzmaschinen

Ohio Cultivator Co., The, Bellevue, Ohio	36

Cultivating Machinery (Hand and Garden)
Culture du sol (Intruments pour la), á main et pour le jardin
Maquinaria Cultivadora (de Mano y para Huerta)
Garten Pflüge (für Handbetrieb)

Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Cultivating Machinery (Horse and Field)
Culture du sol (Instruments pour la), **à cheval** et pour le champ
Maqninaria Cultivadora (de Caballo y para el Campo)
Bodenkultur Geräte (für Pferdebetrieb) .

Bradley Mfg. Co., David, Bradley, Ill.	1
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Engines and Boilers (Stationary)
Machines à vapeur et Chaudières (fixes)
Maquinas de Vapor y Calderas (**Fijas**)
Maschinen und Kessel (Stationär)

Leffel & Co., James, Springfield, Ohio	29

Engines (Traction and Portable)
Machines à vapeur (Pour la traction et transportables)
Máquinas (De Tracción y Portátiles)
Traktions- oder Zugmaschinen und Lokomobilen

Feed and Ensilage Cutters
Coupe-aliments, coupe-ensilage
Cortadora de Forraje y Ensilaje
Futter- und Grünfutter (**Ensilage**) **Schneidemaschinen**

Marseilles Mfg. Co., Marseilles, Ill.	4
Silver Mfg. Co., Salem Ohio	35

Feed Mills
Moulins pour aliments
Molinos de Frorraje ó Pienso
Futtermühlen

Sprout, Waldron & Co., Muncy, Pa.	3

Files (Letter and Card)
Systèmes de classification (lettres et cartes)
Guarda-Cartas y Tarjetas
Skripturenordner (für Briefe und Karter)

Forgings (Carriage)
Pièces forgées (Voiture)
Forjaduras (para carruajes)
Schmiedereien (Kaleschen-)

Gardening Tools (Hand)
Jardinage (**Outils de**) à main
Herramientas de Hortelano (de Mano)
Gärtnerei Handwerkzeug

Grain Cleaning Machinery (Rice, Coffee, Grain, Etc.)
Grains (**Machines à nettoyer les**): riz, café, grain, etc.
Maquinaria pare Limpiar Granos (Arroz, Café, Granos, Etc.)
Getreide Reinigungsmaschinen (für Reis, Kaffee, Korn, u. s. w.)

Sprout, Waldron & Co., Muncy, Pa.	5

Grain Drills
Grains (**Semoirs de**)
Sembradoras de Granos
Drillmaschinen

Monitor Drill Co., Minneapolis, Minn.	35
Superior Drill Co., Springfield, Ohio	5

Grain Grinding Mills
Grains (**Moulins à moudre les**)
Molinos para Granos
Schrotmühlen

Flint & Walling Mfg. Co., Kendallville, Ind.	3
Kelly Co., The O. S., Springfield, Ohio	36
Marseilles Mfg. Co., Marseilles, Ill.	4
Sprout, Waldron & Co., Muncy, Pa.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Hand Carts (Push)
Charrettes à bras
Carretillas de Mano (de Empuje)
Hand-Schiebekarren

Bradley Mfg. Co., David, Bradley, Ill.	1
Deming Co., The, Salem, Ohio	35
Lansing Wheelbarrow Co., Lansing, Mich.	29

Hand Tools (Shovels, Rakes, Hoes, Scythes, Forks, Etc.)
Outils à main (Pelles, râteaux, houes, faux, fourches, etc.)
Herramientas de Mano (Palas, Rastrillos, Azadones, Guadañas. Horquillas, etc.)
Handwerkzeug (Schaufeln, Rechen, Haken, Sensen, Gabeln, u. s. w.

Harrows (Disc, Spring-Tooth and Spike-Tooth)
Herses (à disques, à dents élastiques, à dents droites)
Mielgas ó Rastrillos (de Disco, con Dientes de Resorte y Otros)
Eggen (mit Scheiben-, Federzahn- und Speichenzahn-Vorrichtung)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Loaders
Foin (**Chargeuses de**)
Cargadoras de Heno
Heu Auflader

Marseilles Mfg. Co., Marseilles, Ill.	4

Hay Presses
Foin (**Presses à**)
Prensas para Heno
Heu Pressen

Bradley Mfg. Co., David, Bradley, Ill.	1
Collins Plow Co., Quincy, Ill.	29
Ertel Co., George, Quincy, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Rakes
Foin (**Râteaux à**)
Rastros para Heno
Heu Rechen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6

Hay Tools (For Handling Hay)
Foin (**Outils** pour la manipulation du)
Herramientas para Heno (para Manipular el **Heno**)
Heubearbeitungs-Apparate und Werkzeuge

Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Hods (Steel and Wood)
Auges (Acier et bois)
Artesas de Cargar (de Acero y de Madera)
Tünchkübel (Mörteltröge, aus Stahl und Holz)

Lansing Wheelbarrow Co., Lansing, Mich.	29

Implement Parts (Rake, Teeth, Knife Sections, Etc.)
Pièces de rechange (Dents de râteaux, conteaux de faucheuses, etc.)
Partes de Instrumentos (Dientes de Rastrillo, Secciones de Cuchilla, Etc.)
Theile von Landwirthschaftsgeräthen (Rechenzähne, Messertheile, u. s. w.)

Incubators
Conveuses artificielles
Incubadoras
Brutmaschinen (Inkubatoren)

Ertel Co., George, Quincy, Ill.	6

Lawn Mowers
Tondeuses de gazon
Segadoras ó Cortadoras de Césped
Rasen Mähmaschinen

Clipper Lawn Mower Co., Dixon, Ill.	5
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y	1

Leather (Imitation)
Leder (Imitation)
Cuero (Imitación)
Cuir (Imitation)

Fairfield Rubber Co., The, Fairfield, Conn.	5

Machine Tools
Machines-outils
Herramientas Mecanicas
Maschinen-Werkzeug

Silver Mfg. Co., Salem, Ohio	35

Mowers.
Faucheuses.
Segadoras.
Mähmaschinen.

Mills (Corn and Hominy)
Moulins (pour maïs et bouilie)
Molinos (para Moler Maiz Fino y Grueso)
Mühlen (für Getreide und indianisches Reis, Hominy)

Sprout, Waldron & Co., Muncy, Pa.	8
Standard Harrow Co., Utica, N. Y.	3

Oil Cloth
Toile Cirée
Wachstuch

Plows (Walking, Riding and Disc)
Charrues (ordinaires, à siège, à disques)
Arados (de Caminar, de Montar y de Disco)
Pflüge (Geh-, Fahr- und Scheibenpflüge)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
South Bend Chilled Plow Works, South Bend, Ind.	1
Standard Harrow Co., Utica, N. Y.	8

Potato Machinery
Pommes de terre (Machines pour la culture des)
Maquinaria para Patatas
Kartoffel-Maschinen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Pumps, Hand and Power (Lift, Force and Spray)
Pompes, à main, et à énergie mécanique (Pompes aspirantes, foulantes, pulvérisatrices)
Bompas de Mano y para Fuerza Mecánica (Aspirantes, de Forzar y de Rociar)
Pumpen, Hand- und Kraftpumpen (Hebe-, Druck- und Besprengungs-Pumpen)

Deming Co., The, Salem, Ohio	35
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Reapers.
Moissonneuses.
Cosechadoras
Getreide-Mähmaschinen.

Rollers (Field or Road)
Rouleaux (pour champs et pour routes)
Rodillos (para Campo y para Caminos)
Feld- und Weg-Walzen

Bradley Mfg. Co., David, Bradley, Ill.	1
Lansing Wheelbarrow Co., Lansing, Mich.	29
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Rubber Goods
Articles de caoutchouc
Articulos de Caucho
Gummiwaaren

Rubber Tires
Gummireifen
Bandes de roues en caoutchouc
Llantas de Caucho para Ruedas

Morgan & Wright, Chicago, Ill.	1

Scrapers (Road)
Ratissoires (pour routes)
Dragas (para Caminos)
Strassen Scharr-Maschinen (Strassen-Ebener)

Standard Harrow Co., Utica, N. Y.	8

Seeders, Broadcast (Grain and Grass)
Semoirs pour semer à la volée (Grain et graminées)
Máquinas de Sembrar Semillas al Vuelo (Granos y Semilla de Yerbas)
Breitsämaschinen (für Getreide und Gras)

Sharpeners and Grinders
Machines à remoudre et à aiguiser
Afiladoras y Amoladoras
Schärfe- und Schleif-Apparate

Sleighs
Traineaux
Trineos
Schlitten

Dapson & Wolf, Oneida, N. Y.	

Sprayers and Nozzles
Instruments d'arrosage
Rociadoras y Boquereles
Besprengungs-Spritzen und Uebernasen

Deming Co., The, Salem, Ohio	36
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
Standard Harrow Co., Utica, N. Y.	3

Stalk Cutters
Coupe-chaume
Cortadoras de Tallos
Stengel Abschneider

Street Sprinklers
Arrosage des rues (Tonneaux pour l')
Regadoras de Calle
Strassen Bespreng-Wagen

Studebaker Bros. Mfg. Co., South Bend, Ind.	36

Sugar Cultivating Implements
Sucre (**Instruments pour la culture de la canne à**)
Instrumentos para el Cultivo Azucarero
Zucker-Anbau Geräthe

Threshing Machinery
Machines à battre
Maquinaria de Trillar
Dresch Maschinen

Tire Setters
Machines à fixer les bandes de roues
Máquinas de Poner Llantas
Maschinen zum Aufsetzen von Gummireifen

Standard Tire Setter Co., Keokuk, Iowa	36

Tread Powers (Horse, Dog, Sheep, Etc.)
Machines à utiliser l'énergie de la marche (Cheval, Chien, Mouton, etc.)
Motores de Pisada (para Caballo, Perro, **Carnero**, etc.)
Kraft-Tretmaschinen (Pferde, Hunde, **Schafe**, u. s. w.)

Trucks (Hand Warehouse)
Trucs (Emmagasinage à bras)
Carretillas de Mano para almacén
Transport Handwagen (für Waarenhäuser)

Lansing Wheelbarrow Co. Lansing, Mich.	29

Wagons (Business)
Charettes (d'affaires)
Carros (para negocios)
Wägen (Geschäftswägen)

Wagons and Buck-Wagons
Charrettes et charrettes à lessive
Carretones y Carretas
Wägen und Bockwägen

Ohio Valley Wagon Co., The, Marietta, Ohio	

Wagons and Carts (Farm)
Wagonnets et charrettes (Ferme)
Carretones y Carretas (para Hacienda)
Landwirthschaftliche Wagen und Karren

Lansing Wheelbarrow Co., Lansing, Mich.	29
Studebaker Bros. Mfg. Co., South Bend, Ind.	36

Weeders
Sarcloirs mécaniques
Desyerbadoras
Jäte Maschinen

Standard Harrow Co., Utica, N. Y.	3

Well Tools and Drilling Machinery
Outils pour puits et machines à forer
Instrumentos para Abrir Pozos y Maquinaria para Horadar
Brunnen-Werkzeug und Bohr-Maschinen

Flint & Walling Mfg. Co., Kendallville, Ind.	3

Wheelbarrows
Brouettes
Carretillas
Schiebekarren

Lansing Wheelbarrow Co., Lansing, Mich.	29

Wheels (Carriage)
Roues (Voiture)
Ruedas (Carruaje)
Räder (Kaleschen und Wagen)

Wheels and Wheel Materials
Roues et articles pour roues
Ruedas y Materiales para Ruedas
Räder und Rädermaterialien

Windmills (Towers and Tanks)
Moulins à vent (Tours et réservoirs)
Molinos de Viento (Torres y Tanques)
Windmühlen (Thurm- und Bütten)

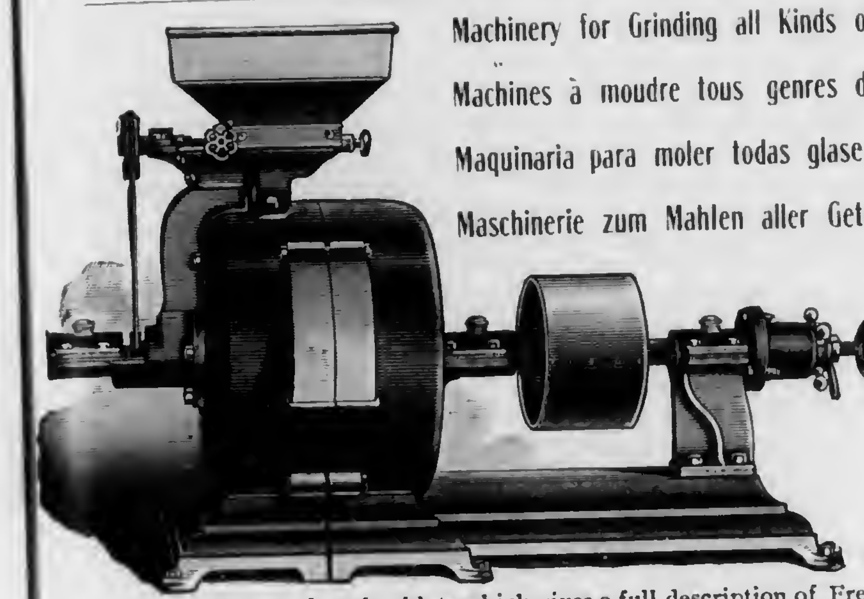
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Marseilles Mfg. Co., Marseilles, Ill.	4
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Wood Sawing Machinery
Bois (Machines à scierie)
Maquinaria para Aserar Madera
Holzsäge-Maschinen

Marseilles Mfg. Co., Marseilles, Ill.	4
U. S. Wind Engine and Pump Co., Batavia, Ill.	31

Alphabetical List of Advertisers.
Annonces par ordre Alphabétique.
Lista Alfabética de las casas que se Anuncian en esta Revista.
Alphabetisch geordnetes Inhalts-Verzeichnis von Inserenten.

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Chadbourn & Coldwell Mfg. Co., Newburgh, N. Y.	1
Clipper Lawn Mower Co., Dixon, Ill	5
Collins Plow Co., Quincy, Ill.	2
Columbus Bolt Works, Columbus, Ohio	36
Dapson & Wolf, Oneida, N. Y.	3
Deere Plow Co., John, Moline, Ill.	31
Deming Co., The, Salem, Ohio	35
Ertel Co., Geo., Quincy, Il.	6
Fairfield Rubber Co., The, Fairfield, Conn.	5
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Kelly Co., The O. S., Springfield, Ohio	36
Lansing Wheelbarrow Co., Lansing, Mich.	29
Leffel & Co., James, Springfield, Ohio	29
Marseilles Mfg. Co., Marseilles, Ill.	4
Moline Plow Co., Moline, Ill.	6
Monitor Drill Co., Minneapolis, Minn.	35
Morgan & Wright, Chicago, Ill.	1
Myers & Bro., F. E., Ashland, Ohio	2
"1900" Washer Co., Binghamton, N. Y.	35
Ohio Cultivator Co., The, Bellevue, Ohio	36
Patch, A. H., Clarksville, Tenn.	5
Potter Co., Morgan, Fishkill-on-Hudson, N. Y.	3
Silver Mfg. Co., The, Salem, Ohio	35
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., The, Utica, N. Y	3
Standard Tire Setter Co., Keokuk, Iowa	35
Studebaker Bros. Mfg. Co., South Bend, Ind.	36
Superior Drill Co., Springfield, Ohio	5
South Bend Chilled Plow Co., South Bend, Ind.	1
U. S. Wind Engine and Pump Co., Batavia, Ill.	31



Machinery for Grinding all Kinds of Grain

Machines à moudre tous genres de grains

Maquinaria para moler todas glase de granos

Maschinerie zum Mahlen aller Getreidesorten

Write for one of our booklets which gives a full description of French Burr and Attrition, Feed and Meal Mills, Cotton Seed and Linseed Oil Cake Mills, Emery Rock Mills, Cotton, Ear and Ore Crushers, Magnetic Separators, Corn Shellers, etc.

Ecrivez pour un pamphlet contenant description détaillée de moulins à meules de France et à frottement, de moulins pour grains de cotton et de tourteaux de lin, de moulins à pierre d'émeri, de broyeurs d'épis et de minérais, de moulins magnétiques, d'écosseurs, etc.

Escríbasenos pidiendo uno de nuestros libritos, en que se da una completa descripción de nuestros Molinos de Piedra Francesa y de Roce, para Pienso y para Harina, Molinos de Semillas de Algodón, y para moler Tortas de Aceite de Semillas de Linaza, Molinos para Roca de Esmeril, Trituradoras de Algodón, Mazorcas y Minerales, Separedoras Magnéticas, Desgranadoras de Maiz, etc.

Man verlange eines unserer Büchlein, das volle Beschreibung unserer französischen Mahlsteine und Reibevorrichtung enthält, wie auch aller Futter-Vorrichtungen, Mehl-Mühlen, Baumwollensaamen- und Leinölsaamen Kuchen-Mühlen, Schmirgel-Bergmühlen, Baumwollen-, Aehren- und Erzzerstückelungs-Maschinen, magnetische Separatoren, Korn-Enthülsemaschinen, u. s. w.

SPROUT, WALDRON & CO.

Drawer M. MUNCY, PA., U. S. A.

The Standard Harrow Co.

UTICA, N. Y., U. S. A.

ABERDEEN, SR.
SPRING-TOOTH
HARROW

Unequalled Strength

No Clogging

Reversible Points on Teeth

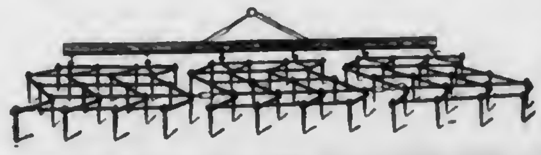
THE STANDARD LINE includes one and two-section Spring-Tooth Harrows and all styles and sizes of Spike-tooth and Disc Harrows, Cultivating Implements, Potato Harvesters, Potato Sprayers, etc., and is one of the most favorably known lines in the leading agricultural countries.

We guarantee prompt service for all export orders. Our factory is only five hours' ride from New York City.

WRITE IN YOUR OWN LANGUAGE FOR CATALOGUE F

ZIG ZAG STEEL
SPIKE-TOOTH HARROW

20-Tooth Sections
½-inch Teeth



EASY RIDING

This two-wheeler is our leading specialty for export.

We equip it with **RUBBER TIRES**, if desired, put on with two wires. The work, like the job itself, is sold under our positive guarantee.

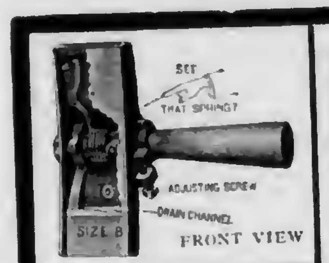
LET US SEND YOU THE PRICES

Dapson & Wolf

ONEIDA, NEW YORK, U. S. A.

WHOLESALE MAKERS OF

FINE CARRIAGES



POTTER'S SPRING BRAKE BLOCKS...

Very substantial. Over 25,000 sets in use throughout the United States. We make them for Steel Tires, and they are especially adapted for Rubber Tires.

Will Not Injure Rubber Tire a Particle

We solicit your correspondence

The Morgan Potter Company

FISHKILL-ON-HUDSON, N. Y., U. S. A.

A Windmill that does satisfactory work naturally is the one you want. The "STAR" is the one that pleases. Our booklets in English, German, French and Spanish tell all about

"STAR" WINDMILLS

designed for the heavy and varied work required of them abroad. The "STAR" is built in all sizes, thoroughly galvanized, has ball bearings and is the easiest running Mill made

"STAR" PUMPING MILL

For many years we have been exporting Windmills and know what is needed to meet all requirements and please our foreign friends. We understand how these goods should be packed for safe delivery, and the packing receives our most careful attention. With all the required parts at hand and properly fitted it facilitates the assembling and erecting of the Mills.

We build **Hand and Windmill Pumps** of various designs, all sizes of **Pine, Cypress** and **Galvanized Steel Tanks, Galvanized Steel Towers** any height. **Power Windmills** for grinding feed and running light machinery and **Steel Substructures** all heights, to support Tanks of any capacity.

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Carros (para negocios)
Wägen (Geschäftswägen)

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Charrettes et charrettes à lessive
Carretones y Carretas
Wägen und Bockwägen

Ohio Valley Wagon Co., The, Marietta, Ohio . . . . . .

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Wagonnets et charrettes (Ferme)
Carretones y Carretas (para Hacienda)
Landwirthschaftliche Wagen und Karren

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Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Weeders
Sarcloirs mécaniques
Desyerbadoras
Jäte Maschinen

Standard Harrow Co., Utica, N. Y. 3

Well Tools and Drilling Machinery
Outils pour puits et machines à forer
Instrumentos para Abrir Pozos y Maquinaria para Horadar
Brunnen-Werkzeug und Bohr-Maschinen

Flint & Walling Mfg. Co., Kendallville, Ind. 3

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Brouettes
Carretillas
Schiebekarren

Lansing Wheelbarrow Co., Lansing, Mich. 29

Wheels (Carriage)
Roues (Voiture)
Ruedas (Carruaje)
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Roues et articles pour roues
Ruedas y Materiales para Ruedas
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Moulins à vent (Tours et réservoirs)
Molinos de Viento (Torres y Tanques)
Windmühlen (Thurm- und Bütten)

Flint & Walling Mfg. Co., Kendallville, Ind. 3
Marseilles Mfg. Co., Marseilles, Ill. 4
U. S. Wind Engine and Pump Co., Batavia, Ill. 31

Wood Sawing Machinery
Bois (Machines à scierle)
Maquinaria para Aserar Madera
Holzsäge-Maschinen

Marseilles Mfg. Co., Marseilles, Ill. 4
U. S. Wind Engine and Pump Co., Batavia, Ill. 31

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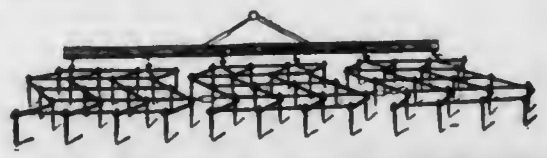

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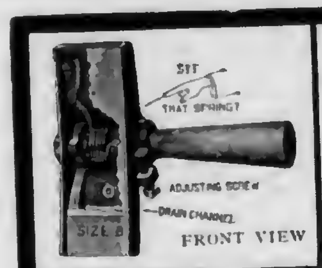

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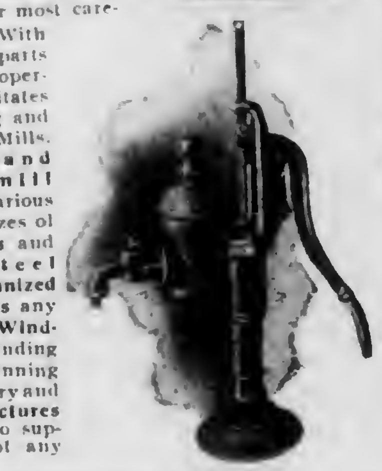

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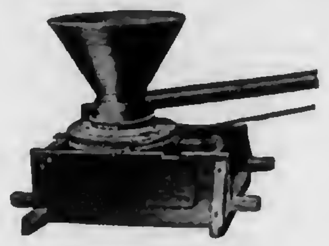
Steel or wood frames.

TWO HOLE HAND CORN SHELLER.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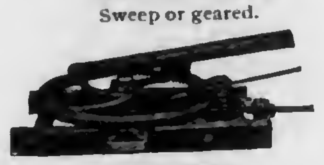
Sweep or geared.

HAND SHELLER

FARM FANNING MILLS.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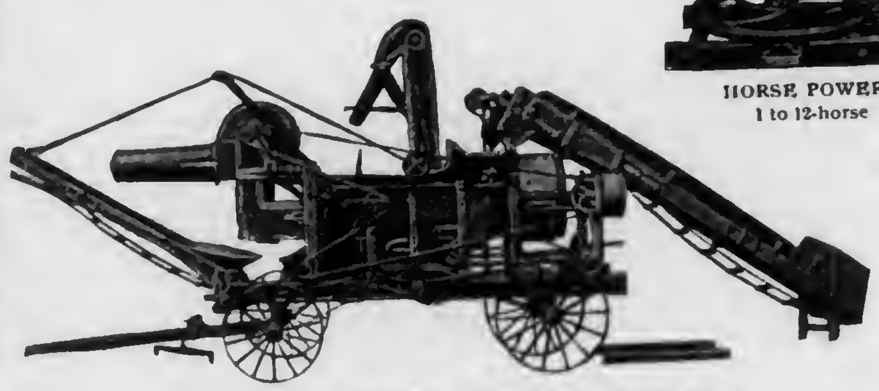
1 to 12-horse

SPEED JACKS.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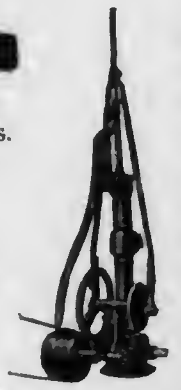
For husked or unhusked corn, made in three sizes, capacities ranging from 400 to 1,200 bushels per hour.

CYCLONE COMBINATION FORCE FEED CORN SHELLER
All sizes and styles for horse power or engine.


PUMPING JACKS

Address **MARSEILLES MF'G. CO. MARSEILLES, ILL. U.S.A.** CABLE ADDRESS { A.B.C. Code "ADAMS MARSEILLES" Western Union Code "ADAMS"

Extend your trade beyond the seas

AMERICAN manufactures are not only in demand, but in many cases are given the preference in foreign countries. Especially is this true of Agricultural Machinery, Farm Supplies, Vehicles and Hardware Specialties. If you are manufacturing any of these goods voice it abroad and make the world your field. You can do it just as easily as you can secure home trade if you'll talk through the

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Semoirs Supérieurs de Grains. Manufacturés en une grande variété de dimensions pour Grains seulement on pour Grains et Fertilisants mélangés, avec Disque, Houe et Soc creusant les sillons. Nous manufacturons des modèles spéciaux de Semoirs de Grains pour l'Europe, l'Australie, l'Amerique du Sud et le Sud de l'Afrique. Demandez les Catalogues descriptifs illustres.

Sembradoras Superiores de Granos. Se fabrican de muchos tamaños de sembrar Granos sóla ó combinada con Fertilizador, con surcadores de Disco, de Azadón ó Zapatillas. Nosotros fabricamos Sembradoras de tipos especiales para Europa, Australia, Sud América y el Africa del Sur. Envíese por un Catálogo descriptivo ilustrado.

"Superior" Getreiderillen. Wird in vielseitiger Auswahl von Grössen hergestellt: Einfache Getreiderillen und Kombinationen von Getreide und Pflugrillen mit Scheiben, Hauen und Schuh-Lockerungs Vorrichtungen. Wir fabriziren besondere Arten von Getreiderillen für Europa, Australien, Süd-Amerika und Süd-Afrika. Man verlange illustrirte beschreibende Kataloge.

We manufacture special types of Grain Drills for Europe, Australia, South America and South Africa

Made in a large variety of sizes in Plain Grain and combined Grain and Fertilizer, with Disc, Hoe and Shoe furrow openers

THE SUPERIOR DRILL CO., Springfield, O., U.S.A.

THE FAIRFIELD RUBBER CO.

Manufacturers of

Carriage Cloth, Imitation Leather, Etc.

FAIRFIELD, CONN., U. S. A.

We believe you will find our cloths more desirable fabrics than have been presented for your consideration.

Not only do we offer our lines as superior to any, but some are special with us.

We warrant all our goods in every manner, and in all climates.

All we ask is a trial of our productions, as we know the result will be in our favor.

Our many years' connection with the foreign trade places us in a position to know fully as to their wants, and the large orders we receive from that field convinces us that the high standard at which we have kept our goods is appreciated. We refer with pleasure to any leading Export house in New York as to the merit of our cloths.

Send for quotations through any Export house, or write us direct.

When ordering goods in our line, ask for goods made by

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is an independent journal devoted exclusively to the Export Trade in Agricultural Machinery, Pumps, Wind Mills, Farm Tools, Dairy Supplies and Hardware Specialties.

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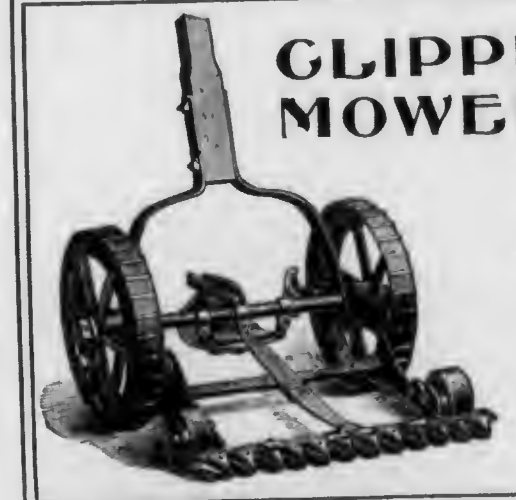


CLIPPER LAWN MOWER CO. DIXON ILLINOIS

THE MOWER that will kill **all the Weeds in your Lawns.** If you keep the weeds cut so they do not go to seed, and cut your grass without breaking the small feeders of roots, the grass will become thick and the weeds will disappear.

THE CLIPPER WILL DO IT

Ask Your Dealer for Them

Black Hawk Mill

Wgt 17 Lbs.

GRINDS Corn, Wheat, Rye, Rice, Coffee, Spices, Etc.

Instantly Adjusted to Grind Fine or Coarse.

WILL DO GOOD WORK AND LAST

Grinding Plates are of the Hardest and Strongest Metals. Can be replaced at slight cost.

Packed in barrels of 12 each. Gross weight, 240 lbs.; net, 204 lbs. Measurement 6¾ cubic feet.

A. H. PATCH, Sole Maker, Clarksville, Tenn., U. S. A.

Order through any Reliable Commission House.

PATCH'S PATENT

Black Hawk Corn Sheller

Wgt. 15 lbs.

SHELLS FAST. SHELLS CLEAN. SHELLS EASILY.

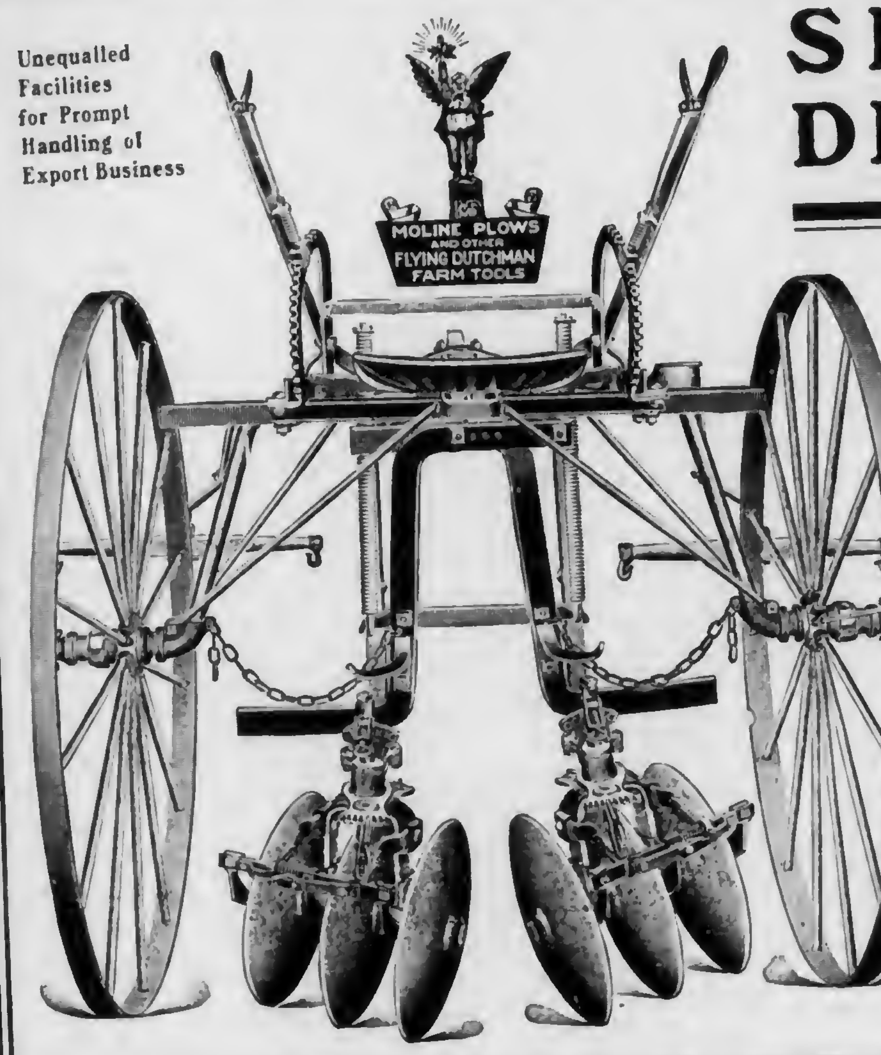
Beware of Imitations

Capacity 8 to 12 bushels ear corn per hour.

Packed 10 in a barrel. Gross, 180 lbs.; Net, 150 lbs. Measurement 6¾ cubic feet.

MADE ONLY BY

A. H. PATCH, CLARKSVILLE, TENN., U. S. A.



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Facilities
for Prompt
Handling of
Export Business

SHANGHAI KIDD
DISC CULTIVATOR

Forty-six inches from lowest point of arch to the ground. Adjustable in width from 48 to 72 inches. Popular for cultivating Corn, Cane, Tobacco, etc. Packed for export, weighs 830 pounds. Occupies 25 cubic feet of space.

STALK CUTTERS, WALKING AND RIDING PLOWS, DISC PLOWS, DISC HARROWS, PIPE-LEVER HARROWS, CORN PLANTERS AND DRILLS, LISTERS, COTTON PLANTERS, CULTIVATORS—BEET SEEDERS, CULTIVATORS and PULLERS

MOLINE PLOW CO.

MOLINE, ILL., U. S. A.

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Sole Agents for Argentine
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MALCOMESS & CO.
Sole Agents for South Africa
East London, South Africa

FRONT VIEW
VUE DE FACE
VISTA DEL FRENTE
VORDERANSICHT

37 YEARS building hay, straw, wool, cotton and corn fodder presses should certainly make us experts, and we claim that our presses are the simplest, easiest draught on the team and the smoothest balers on the market to-day.
Our presses will bale from 10 to 18 tons a day in hay.
Our presses will bale from 10 to 15 tons a day in straw.

Depuis 37 années que nous construisons des presses à foin, à paille, à laine, à coton, à fourrage de mais, nous avons indubitablement acquis une expérience qui a fait de nous des experts, et nous n'hésitons pas à dire que nos presses sont les plus simples qui soient aujourd'hui sur le marché et celles qui fatiguent le moins l'attelage et fonctionnent le plus aisément.
Nos presses emballottent de 10 à 18 tonnes de foin par jour.
Nos presses emballottent de 10 à 15 tonnes de paille par jour.

Despues de 37 años que construimos prensas para heno, paja, lana, algodón y forraje de maiz tenemos que ser expertos en ese ramo, y por lo tanto reclamamos que nuestras prensas son las más simples y las más livianas para el acarreo por parejas de caballos, y las enfardadadoras mejores que existen hoy en el mercado.
Nuestras prensas enfardan de 10 á 18 toneladas de heno por dia.
Nuestras prensas enfardan de 10 á 15 toneladas de paja por dia.

37 Jahre ununterbrochener Fabrikation von Heupressen, Strohpressen, Wolle- und Baumwollenpressen, wie auch Maisfutter-Pressen, sollte uns wahrlich in den Stand gesetzt haben, Experten dieser Branche geworden zu sein; wir beanspruchen deshalb für unsere Pressen, dass sie die einfachsten in Konstruktion sind, beim Gespann den leichtesten Zug haben und zum Emballiren die vorzüglichsten Dienste leisten. Unsere Pressen sind im Stande 10 bis 18 "Tonnengehalt" Heu und 10 bis 15 "Tonnengehalt" Stroh täglich zu emballiren.

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Catalogue franco sur demande
Catálogo Gratis
Kataloge frei

Our "Gem" Full Circle

We make a line of both Full Circle and Half Circle Presses.
Prices, f. o. b. cars New York City, on our Gem Full Circle Balers, properly crated for export:

	Net Weight.	Gross Weight.	Space	Prices.
14 x 18 Baler	2,650 (1,457 Kilos)	3,700	115 cubic feet	$215.25 (£44.16.10)
16 x 18 Baler	2,775 (1,526 Kilos)	3,800	171 cubic feet	218.00 (£45. 8. 4)
17 x 22 Baler	2,975 (1,636 Kilos)	4,000	120 cubic feet	221.50 (£46. 3. 0)

Notre presse "Gem" à cercle entier

Nous fabriquons un assortiment de presses à demi-cercle et à cercle entier.
Prix de nos presses "Gem" à cercle entier, mises en wagon à New York et convenablement emballées pour l'exportation:

	Poids net.	Poids brut.	Espace.	Prix.
Presse 14 x 18	2,650 (1,457 kilos)	3,700	115 pieds cubes	$215.25 (£44.16.10)
Presse 16 x 18	2,775 (1,526 kilos)	3,800	171 pieds cubes	218.00 (£45. 8. 4)
Presse 17 x 22	2,975 (1,636 kilos)	4,000	120 pieds cubes	221.50 (£46. 3. 0)

Nuestra Prensa "Gem" Circulo Entero

Nosotros fabricamos un surtido completo de prensas tanto de medio círculo como de círculo entero. Los precios de embarque de la Prensa "Gem" son franco á bordo de los carros hasta New York, y se empaquetan con seguridad para exportarlas.

	Peso Bruto.	Neto.	Espacio.	Precio.
Prensa 14 x 18	2,650 (1,457 Kilos)	3,700	115 piés cúbicos	$215.25 (£44.16.10)
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Unsere Voll-Zirkel "Gem" Presse.

Wir fabriziren ein Assortiment von Voll- und Halbzirkel-Pressen.
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EXPORT IMPLEMENT AGE

Vol. XIV. Philadelphia, Pa., U. S. A., June, 1906. No. 3

GROWTH OF THE AMERICAN AUTOMOBILE INDUSTRY

By Mr. Herbert N. Casson, in *Pearson's Magazine.*

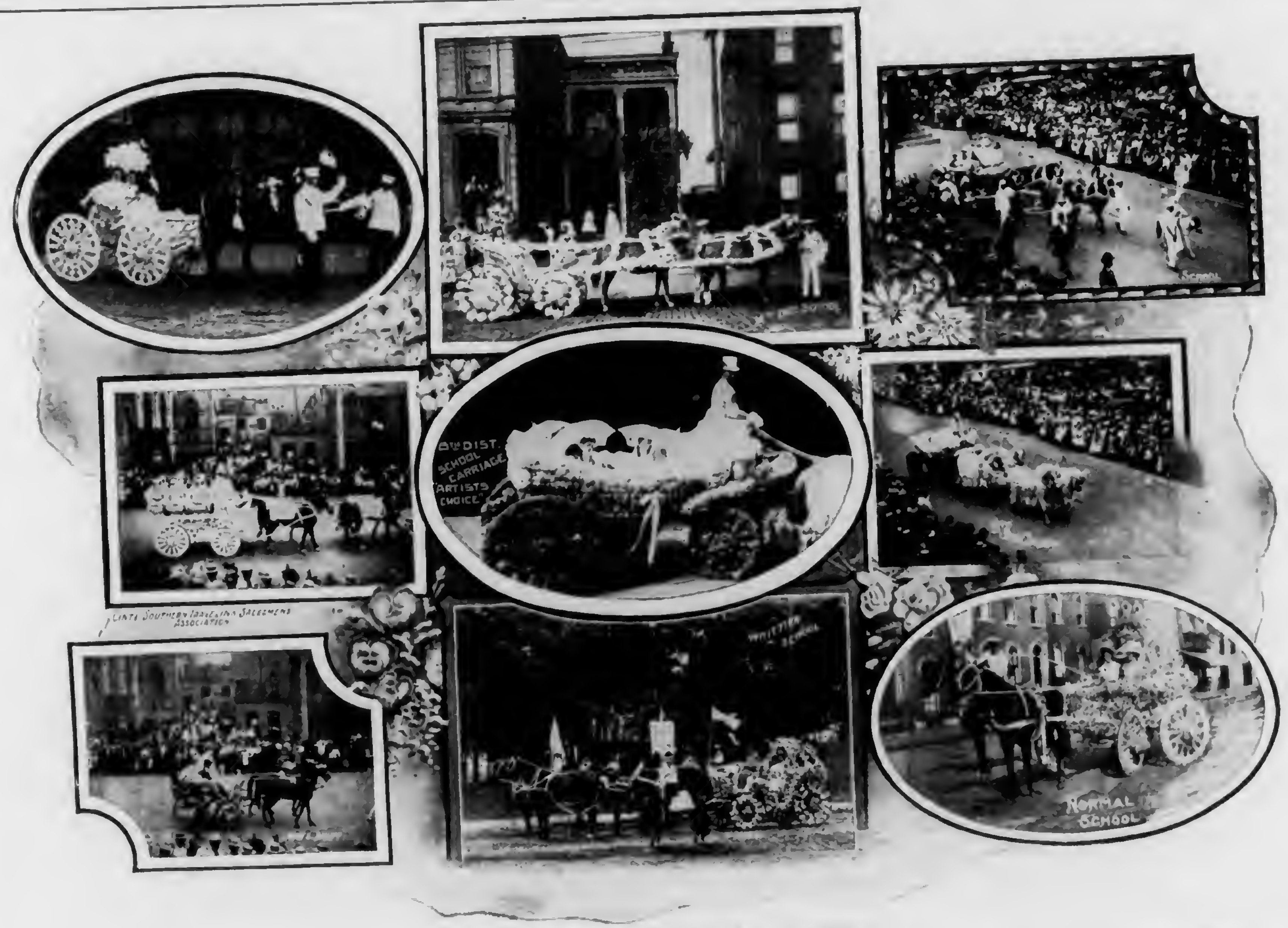
Though practically no more than six years old, our American automobile industry, has become the champion of the world. We begin this New Year ahead of England, Germany Italy and even France, in the number of machines produced. This is not a guess, nor a manufacturer's dream. It is a statement based upon figures that have been first collected from a hundred manufactures, and the verified by a comparison with the amount paid in royalties.

Here, at last, are the exact figures: In the year 1904 we made 26,601 automobiles worth $34,650,500. We have $21,313,000 invested in the business. Taking for granted that the men who make automobiles have an eight-hour day, the new machines are whizzing out of our factories at the rate of *one every five minutes.* Bradstreet's, whose stock in trade is accurancy, has given me these totals—the final result of a thorough investigation.

Twenty-four thousand machines are registered in New York State. In France, where the automobile was born, there are not more than seventeen thousand. And in the whole United States, if we took an automobile census, we would find about seventy thousand now in use. With only three in a car, we have as many automobiles as could take every man, woman and child in the great city of Mineapolis for a spin. Yet ten years ago there were less than fifty in use—twelve years ago they were as scarce as flying-machines—eighteen years ago there were none.

Of all the articles of commerce, the automobile is the youngest. It is the first-born of the twentieth century. Olds, Ford, Winton, Haynes, and Duryea were each making one feeble little car a year until 1896. Then Duryea formed the first company, and became the Carnegie of automobiledom by producing thirteen a year! But the fact is—am I telling a national secret?—that we lost four or five years by paying no attention to what had been already accomplished in France. We struck out alone on the "horseless carriage" route, and wandered around in an adventurous but futile way until about five years ago. Then we said, "Looks as if France was on the right road, after all." We made a new start, speeded up as only American manufacturers can, and to-day, in the number of automobiles produced, we stand at the head of the world.

More than this, the American automobile has recently become the International King of Speed,—the swiftest thing ever devised by the human mind for the purpose of rapid



FEATURES OF THE CINCINNATI FALL FESTIVAL

Samples of displays in one, two and four-horse vehicles, representing various industrial and manufacturing associations and firms. To be held between August 28th and September 22nd, in Cincinnati, Ohio, U. S. A.

Courtesy of the Cincinnati Fall Festival Association Co.

transit. At the speed trials held last January at Ormond, Florida, it was a Stanley-steamer that made the amazing record of a mile in twenty-eight and one-fifth seconds—a rate of nearly a hundred and twenty-eight miles an hour. This is faster than the best official time made by the German trolley cars at Zossen which attained a speed of a hundred and twenty-five miles an hour. It is faster than the records of the swiftest locomotives, which have never covered more than a hundred and sixteen miles an hour. And it is faster than the time made by any other motor-car, in France or any other country. The Darracq, a two-hundred-horse-power machine, won the two-mile race at the Ormond races, but even in that contest the little fifty--horse-power Stanley came only four-fifths of a second behind. And the Stanley is in every respect an American machine, made and driven by men who were born in New England.

Of all our infant industries, the automobile is the most precocious. In value of product, it is now seventy times larger than the wheelbarrow, its humble ancestor in the horseless vehicle line. It is forty per cent. ahead of the sewing-machine, which is seventy years of age. It is running neck and neck with the piano, that veteran of the year 1710. It has left behind it the tin plate, which has until now been regarded as our cleverest juvenile prodigy. And it has, during the past year, flashed past that oldest of all American businesses, the fur trade, which traces its ancestry almost as far back as Columbus.

These facts, and those to follow here, will come as a surprise to most people. Very likely not one of us in a dozen has even seen an automobile factory. For some unknown reason, the average automobile factory is a shy institution, hiding itself modestly in one of the smaller cities. Most of them are in Ohio and Michigan. Among the cities, the struggle for supremacy in this line has become a duel between Cleveland and Detroit. The Winton, Peerless, White, Baker, Stearns and Royal graduate from Cleveland; and the Cadillac, Ford, Packard, Northern, Ried, and Wayne make their deput from Detroit.

Some automobiles that have made small towns famous are the Oldsmobile, Reo, Daimler, Maxwell, Auto-car, Grout, Studebaker, Elmore, Haynes, Buick and Rambler. Others that have not withdrawn from the larger cities, are the Locomobile, of Bridgeport; Pope and Columbia, of Hartford; Thomas, of Buffalo; Knox, of Springfield, Mass.; Franklin, of Syraucuse; Yale, Kirk and Pope-Toledo, of Toledo, and Marmon, of Indianapolis.

I will be surprising if Michigan does not very soon improve its state seal by the addition of an automobile rampant. Last year it sold eight million dollars' worth of new machines, which were made by twenty-eight hundred men and six women. Thirty-three manufacturers have staked about five millions on the automobile's future—actually a million more than Michigan has invested in its famous breakfast foods. And in Lansing, the state capital, every seventh workman makes autos, every thirtieth family owns one, and the whole city is being Oldsmobilized to such an extent that you will hear on the streets and in the homes the language of the trade. A wife, for instance, who speaks Lansingse, may say to her husband, "John, sprag the baby carriage so that it won't skid, and then speed up to the back-yard and put a muffler on the dog."

And so, instead of being a speculation, the automobile industry is now a trade. Instead of a fad, it is a necessity. Trades that were old when Rome and Greece were young are no better organized or more firmly established than this newcomer. Get the "Automobile Trade Directory" and you will see a handsome book of eighty-six pages. Compare the club lists and you will find that no club is superior to the "Automobile Club of America," either in the matter of business ability or social standing.

Every month 40 experts meet in New York to compare notes. Every year there is a show of American makes,—a show not a whit less impressive than those of the Grand Palais—a show where our social celebrities gather, not to see one another, as at the Horse Show, but to see what new miracle the automobile makers have accomplished. In the recent double show in New York, there were more than five hundred exhibitors of over three hundred different models on exhibition.

If the business were not scattered through fourteen states—if it were concentrated into a City of Automobilia, it would form one of the largest fifty-six cities in the United States; its population would be seventy-five thousand. If the people who make the raw materials and sell the machines were to move into Automobilia, the city would boom into a rival of Denver. And if those who make their living driving or repairing automobiles were to be added, this five-year-old city would have a greater population than the State of New Mexico, or Deleware. The gross income of this new city would be about seventy-five millions—as much as the national revenues of the combined kingdoms of Portugal and Denmark.

We continue to import foreign autos, of course—more than two million dollars' worth in the first eight months of last year. They climbed in over a tariff barrier of forty-five per cent. If you ask why, you can be answered in two words—precedence and prestige. In the European races, which began twelve years ago, several makes of autos became famous. They were bought by kings. They were decorated with honors. They were talked about until their very names acquired a flavor, as old wine. As yet, it is a heresy to say that the young American cars are just as good as the battle-scarred veterans of Europe. But when Tracey finished third in an American car last October, with only two of these famous foreign autos ahead of him, and a dozen behind, in the race for the Vanderbilt cup, the experts rubbed their eyes and changed their opinions. To arrive less than twenty-three minutes behind the fastest French car, in a race of two hundred and eighty-three miles, is not exactly a sign of incurable inferiority, for a six-year-old industry.

"The Yankee is now a terrible competitor," complains a French manufacturer. "American prices are below ours, and the body-work of American cars is more carefully made."

France sends us the autos of prestige. We send France the autos of utility. In all civilized countries, you will now see our handy runabouts, preparing the public mind and the private purse for the larger cars. At a recent auto show in Milan, three American makes were exhibited. The figures for last year are not yet complete. But in 1904 we sold the outside world two million dollars' worth of our automobiles. Enough has been done to show that when our manufacturers get in earnest about the foreign trade, they will have no trouble to find buyers. Already European commerce is being enlivened by the vaudeville enterprise of a few American automobile agents. A recent cablegram announces that one of them has been arrested in Odessa for driving his car up a flight of stairs which is said to be the longest flight in the world. Result—publicity and many sales.

We have made eighty-two million dollars' worth of new cars in five years. But who can tell the vast amount that is being put into circulation by the seventy thousand automoibles that are chugg-chugging in every state in the Union. As an apparatus for the distribution of superfluous wealth, the automobile has never had an equal; it stands in a class by itself.

"What we need," says one of our professors, "is a workable arrangement to redistribute our congested wealth." Speaking half seriously, why is it that no professor has given the automobile its fair share of credit for scattering the golden seed? The steam engine, for instance, was an invention which showed us how to *make* money. But the automobile is an invention which shows us how to spend it—quite a separate accomplishment.

At this point we have no exact figures. We have left Bradstreet's and find ourselves in the land of guesses. The encyclopedias and the latest census are dumb. Even in the average dictionary you will not find the word "automobile." The whole industry is almost as new as radium. But it is a fair estimate to say that our seventy thousand cars draw out an expenditure of seventy millions by their owners. When we call to mind that the Glidden tour of the world is costing thirty dollars a day; that Bowden, of Boston, spent fifty thousand dollars to do a mile in less than thirty-three seconds; and that dozens of young millionaires are almost inseparable from their automobiles, this estimate will seem much too little.

And this is not all. This rising tide of automobile trade has deepened the water in many a remote harbor. In the "Automobile Trade Directory," I find that thirty-seven tailors are now making a specialty of automobile clothes. Lamps for automobiles are being made by forty-five concerns; horns by fourteen; hampers by twenty-three; gloves by twenty; clocks by eleven, and cushions by twelve.

Apparently there is no connection between opticians and automobiles, yet here are seventeen who have begun to manufacture eye-shields. Ten makers of portable houses have rubbed out the word "house," and painted in the word "garage," thereby increasing the activity of their cash register. Nineteen soap-makers have jumped through the open door of opportunity, and commenced to make special brands that are guaranteed to

obliterate grime from the chauffeur's hands and green oil from his hair. A dozen trade journals—"too many," say the manufacturers—are distributing the news of the business.

"What is to become of the coachmakers, inn keepers and horsedealers?" demanded Admiral Sir Isaac Coffin in the British Parliament, when it was proposed to give a charter to Stephenson's first railroad. The admiral soon found, to his surprise, that the railroad created ten new trades for every one that it displaced. And the automobile will do no less. In spite of what a few enthusiasts are predicting, the automobile will not decrease the traffic of the railroads.

On the contrary, the auto is the best drummer the railroads have ever had. It cultivates the instinct of travel, upon which the railroads largely depend. It supplies them with a new kind of highly profitable freight. Last year, for example about seven thousand freight cars were needed to transport automobiles from factory to garage. And so far as hurting the horse market is concerned, here is the fact, however it can be explained: twelve years ago, the average price of horses was sixty-five dollars; today it is a hundred and thirty. Knowing this, what horse can feel resentful of its tooting competitor?

Absolutely new professions are springing up to serve this wheeled Pegasus. There is the chauffeur. Is he not a new species of man? Part coachman, part mechanic, part traveling companion—on what level of the social scale can we place him? He has points of contrast with all classes. No matter how snobbish his employer may be, it is somewhat difficult to feel that a man is a social inferior when he converses of "float-feed carburetors," and epicycloidal transmission." In one of the most popular of English automobile novels, a viscount masquarades as a professional chauffeur, and, as we might have expected, no one penetrates his disguise. There were so many other chauffeurs with the manners of viscounts that he passed through sixteen chapters without detection.

The ideal chauffeur, no doubt, still has his residence mainly in fiction. But the fact remains that his profession calls for a remarkable combination of accomplishment. Above all, he must have what we might call auto-sense—a sort of mechanical presence of mind. The first school for chauffeurs was opened in 1904 by the New York Y. M. C. A., with a hundred and thirty-six students. Purdue University, Indiana, announces that it is now prepared to turn out chauffeurs as part of its finished product. So in a year or two, if we notice the letters M.S.A. after a man's name we may know that it means "Master of Scientific Automobiling."

"Two of our best chauffeurs were milking cows and hoeing potatoes a year ago," said C. B. Brokaw, principal of the New York school; "to-day they are getting a hundred dollars a month each."

Another new profession, one which is still under the head of unfinished business, is road-making. How to make a dustless and durable road—that is the problem. Some road-makers are experimenting with oil and tar, to make dust impossible. Steel roads have been suggested by Charles M. Schwab. Several states are taking up the work in a large way; Pennsylvania has just spent six or seven millions; New York has just voted to spend fifty millions within the next ten years.

FEATURES OF THE COMING CINCINNATI FESTIVAL, TO BE HELD AUGUST 28 to TO SEPTEMBER 22d.

Types of displays to be made showing vehicles decorated and carrying children of various schools, including a representation from the Cincinnati Southern Traveling Men's Association

Courtesy of the Cincinnati Fall Festival Association Co.

The "Old Cumberland Road" between Washington, D. C., and St. Louis, which comes perhaps the nearest to being a satisfactory inter-state highway, will probably be the first road to be made really fit for a automobile traffic.

In that mysterious region of an automobile that lies under the hood, there are parts of the machinery that require an entirely new kind of steel, a certain glassy quality which is now being made especially for the manufacturers of automobiles. And so it is in the other trades that supply raw materials; dealers in leather, brass aluminum, wood, in everything that enters into the construction of the machine, are being forced to specialize to meet the demands of this new customer, who is clamoring for something better than the best.

Then there is real estate. What the automobile will eventually do in opening up new territory is a dream of millions. What it has already done is astonishing. The secret of its influence upon land values is this—it is not limited to a certain track, like a railway train. It goes wherever there is a road. In new York State, for instance, there are about eight thousand miles of railway and seventy-four thousand miles of roads. An automobile can reach nine times as much territory as the railway does—more, if we take into account the fact that a railway train stops at its stations only.

With a good automobile, a doctor can visit a patient at least thirty miles away, and return to his office the same afternoon; he becomes the center of a circle a hundred miles in diameter; he has a practice that covers an area of three thousand square miles. City-bred families can now live in the country without leaving their physician, their lawyer or their friends behind them. Our cities will become less like pyramids and more like parks. The country home and hotel will flourish. Already the deserted farms of New England are being sold for fairly remunerative prices.

THE OLD, SLOW WAY

Even to this day in many parts of the tropical world are seen long lines of faithful camels carrying freight across desert regions where water is practically unknown. The camels are fast walkers, carry large loads, and constitute in some sections the only means for carrying freight

Ten years ago an automobile attracted as much attention as though it were a giraffe, even in our large cities. To-day it goes wherever the roads do. It has climbed Mount Washington—six miles—in less than twenty-one minutes. It has scrambled up Pike's Peak, and spun through the sand of the Nevada Desert. It has been adopted in the Army, the Post-office, the Fire Department, in all public institutions, in short, except the Navy.

Even in its original character as a racing toy, the automobile does more to put money in circulation than most of us imagine. A race such as the recent one for the Vanderbilt Cup is a sport for kings—money-kings, at least. Those nineteen racers that whirled around the course like the rings of Saturn—every one of them represented a small fortune. Five hundred thousand dollars could not have bought them. Five hundred flagmen were employed to police the track. Gangs of laborers, the week before, had oiled the twenty-eight miles of road until it shone like a glossy strip of leather belting. Fifteen telephone booths around the course sent bulletins to the official megaphoner at the grand stand. Dozens of farmers got a pocketful of nickles apiece selling sandwiches and milk. And, best of all, at this particular race, an American car proved that it was practically the equal of the renowned racer of Italy and France. All of which means business, the investment of more capital, the payment of more wages, the greater comfort of more American homes.

"Give the races full credit for developing the automobile trade," said a well known New York automobilist, Mr. E. R. Thomas. When the writing of this article was mentioned to him he said: "The automobile is the machine of speed, and always will be. A race is a fair test. It enables the fittest machine to forge to the front. Generally, in the winning of a race, ninety per cent. of the credit should go to the car and ten per cent. to the chauffeur, through now and then, as in the case of Lancia, the chauffeur is the main factor."

What the grand total is, in this carnival of exenditure, no one can say. Even a guess might come fifty millions short of the mark. As we have seen, there have been spent during the year more than thirty-six millions for new machines and about seventy millions in the running of all automobiles, old and new. Add to this the millions for roads, and the still greater sum for country homes. Then add the rise in suburban real estate and the innumerable small amounts that are enriching the farms and villages. Nothing short of this could give us an accurate idea of what the automobile means to the United States, in the expansion of our trade and the promotion of our prosperity.

In the making of automobiles, we were slow to begin. We certainly made no flying start in the international race. But the indications are that we will do as we did in the making of steel—flounder about for several years, through lack of confidence and captial, and then sweep with a rush to the championship of the world. Already we have something original to our credit—the making of cheap and hardy machines that are within the reach of the non-millionaire class. To democratize the automobile seems to be the world-task of our manufacturers.

"Our real purpose," says Dave H. Morris, president of the Automobile Club of America, "is to develop the automobile as a reliable method of transportation for all the world, and not simply for the rich."

Full credit will always be given to France, for her dogged persistence in furthering the automobile. France had faith in its future. When other nations said, "It is a dream," France said, "I will make it a fact." But, naturally, France built for the few who could afford an expensive plaything, and for the billiard-table roads of France. It has re-

mained for the United States to produce, not only the highest class machines, but also a new sort of cheap and strong car for popular use. These simple runabouts are doing more to expand the trade than any other one thing. They act as the thin end of the wedge. "People first want cheap automobiles, then expensive ones," said Mr. E. R. Thomas.

It is still possible for a careless chauffeur to run his expense account up to four thousand a year. But the total cost of maintaining an auto need not be more than nine to fifteen cents a mile. One manufacturer is even claiming that his cars can be run at a repair cost of twenty-five dollars a year. For fuel, a gallon of gasoline costs twenty cents at retail, and drives the car twenty miles. And the durability of our American cars is miraculous; a thousand-dollar car may be expected to run, with fair treatment, thirty-six thousand miles. One sturdy car recently ran six thousand miles without a break—an astonishing feat when it is remembered that in such a trip the flywheel would have made forty-two million revolutions and the cylinders would have exploded eighty-four million times. The automobile is no longer a delicate toy, but a reliable commercial article.

THE OLD WAY

In the days of the pioneers before the railroads had penetrated the country the farmers were supplied with wagons and buggies by enterprising dealers who transported them overland in long trains or lines. The above cut represents a train of vehicles stopping at one of the many settlements in California to feed and water and incidentally sell a few vehicles.

We are bound to lead in this new industry. Already we are making more machines than France. We have the largest home market. Already we sell two million dollars' worth annually to foreign countries—one seventh as much as France. And, according to figures published last November by the *London Times*, the British automobile trade is only half as large as ours. We have four hundred and thirty-five thousand families who own at least twenty thousand dollars' worth of property, says a recent authority. Add to this number those who have little or no property, but large salaries, and the total number of families who can easily afford to have an atuomobile is increased to half a million. Many enthusiasts will have more than one car. W. K. Vanderbilt, Jr., owns fourteen, and Colonel J. J. Astor twenty-two. Five hundred thousand automobiles for pleasure, and probably twice as many for freight! Such is a moderate estimate of the future—the near future—of the automobile.

Another reason for our supremacy is that the automobile suits us better than it suits any other nation. We are a restless people. We are not moss gatherers. Wherever we are, we generally want to be somewhere else. The automobile appeals to our love of travel and to our self-reliance. The railway train is fast enough; but it carries us as if we were freight. We have no choice. We sit passively in seats like so many bags of rice. The engineer and conductor always appear to be our masters, and not our servants. But in the automobile, there is a difference. It is as free as a horse, as tireless as a locomotive, as independent as the United States.

An automobile is like a magical body, of which the driver is the soul. The man who grasps its wheel and feels its pulsing life beneath him, has the joy of a worm that wakes to find itself with wings. Now that the automobile has arrived, man's chrysalis stage is ended. With no thought for time-tables, no worry over tickets or lower berths, you fly though an enchanted land like a cage-bred swallow that has suddenly been set free. Now, perhaps, we have found out why nature tantalized man by giving him a brain on fire in a body of clay. We have the pleasure of completing ourselves, as we might say, and of making our fairy tales come true.

"Better than dancing on a perfect floor with a perfect partner to pluperfect music, better than eating when you're awfully hungry, better than holding out your hands to a fire when they're numb with cold," exclaims the heroine of an automobile novel, when telling her father of a ride through Italy.

Scientists may say that the automobile has no consciousness; but the automobilist knows better. How can anything be really dead that has the language of a living creature, the whims of a woman, the obstinacy of a man? When an automobile is happy, how it purrs like a cat on a cushion! When it is out of sorts, how it wails and gnashes its gear-teeth! How gentle it can be, and how fierce! To-day it glides pensively along, silent as the hills. To-morrow it dashes wildly, with glaring acetylene eyes and with the roar of a Gatling gun.

As yet, there is little sentiment about the automobile. It is too young. But has it not inspired Kipling, Maeterlinck and Henley? Von Herkomer, too, a Barvaian artist, has represented "The Future" as a maiden bound to the front of a racing automobile. And the "automobile honeymoon" has become the proper thing. Sentiment takes time to grow. It is the moss that gathers on old memories.

"There will not be a horse in New York City south of Forty-second Street in ten years," prophesied Samuel A. Miles, manager of the National Association of Automobile Manufacturers, when I asked him about the future of the automobile industry. "A factory that produced ten automobiles five years ago," he said, "can now produce a hundred. The mushroom firms are falling out. No amount of capital can take the place of experience. And we are entering upon an era of safe and sane automobiling, leaving behind us the craze for terrific speed."

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AUTOMOBILES EXPORTED

The value of automobiles and parts thereof exported from the United States during March, 1906, was $293,561, compared with $235,826 in March, 1905. For the nine months ending with March, 1906, exports of automobiles were valued at $2,064,874, comparing for like periods with $1,638,601 in 1905 and $1,305,777 in 1904. The United Kingdom took the largest share of exports of automobiles for the nine months—$541,431; British North America was second, with $353,717; West Indies and Bermuda third, with $220,424; Italy fourth, with $171,628. The exports exceeded $100,000 in value to France, Mexico, and British Australasia.

FIFTEEN HUNDRED CARS BUILT IN TWELVE DAYS

All records for car construction were broken recently, when the employees of the freight car department of the Pullman shops completed for the Nickel Plate road a contract for 1,500 cars in twelve days. This is 300 more cars than were ever before built by one concern in the same length of time.

When the last car was finished, the whistles on the shops were sounded, the machinery was shut down, and for more than an hour, the men indulged in a celebration, which was participated in by the officers of the company. Cigars were distributed and the workmen were congratulated for their success in setting a new mark.

METRIC SYSTEM.

Consul R. S. Chilton, Jr., writes from Toronto, that a prominent Canadian manufacturer calls his attention to the fact that the lectures given throughout Canada by Professor McLennan, under the auspices of the Canadian government on the subject of the metric system of weights and measures, are for educational purposes only, and are not to be taken as indicating an intention to adopt that policy in the near future. The manufacturer states further:

"The Canadian Manufacturers' Association have requested the Canadian government to withdraw the McLennan lectures, and ask the government to take action on weights and measures until such is done by Great Britain and the United States. They have also recommended that the chambers of commerce of the Empire, at their meeting in London this year, ask for a royal commission to investigate weights and measures, and to report a system which will be acceptable. The Canadian Manufacturers' Association represents nearly 2,500 of the leading manufacturers of this country between Halifax and Victoria, and for this reason I only thought it fair that the United States consulate should state that those most directly affected by a change to the metric are opposed to any immediate action."

POPULATION OF NEW YORK YEARS HENCE

In his address to the Savings Bank Association, Mr. Vanderlip quoted the United States Government actuary as unqualifiedly predicting that Greater New York will, when the recent issue of 4 per cent. bonds mature, have a population of 8,500,000. To this the *Wall Street Journal* adds: "The United States actuary could safely make that prediction. During the past twenty-five years, the population of New York has increased 110 per cent. The recent issue of bonds has fifty years to mature. If the population should increase in the same ratio during the next twenty-five years, it would amount in 1930 to 8,450,000, or as much as the Government actuary predicts it will be in fifty years. Even calculating the population on a more conservative basis, it would appear that the Government actuary is vastly underrating the future expansion of Greater New York. The chairman of the London county council recently predicted that the population of Greater London in 1930 would amount to 11,000,000, which would be a growth of 67 per cent. in twenty-five years. Estimating the growth of New York at the same rate, 67 per cent., the population would amount at the time of majority of the 4 per cent. bonds to 11,000,000, or 2,500,000 more than the government actuary's estimates. New York is actually growing faster than London, so that it may safely be predited that by the time the 4 per cent. bonds mature, the population of this imperial city will equal or exceed that of London at that time, notwithstanding that Greater London now has 2,500,000 more people than Greater New York."

PERU'S COMMERCIAL PROGRESS

In hardware, tools, and cutlery the business of the United States with Peru has grown from $52,400 per annum to $86,300. England, our most formidable rival, has made almost the same increase, from $47,000 to $77,000. German trade in these goods, while still considerable, has suffered in recent years, through the disrepute into which the extremely cheap German makes have fallen. There is apparently a very good outlook for American goods. One large firm in Lima assured me that their business in these articles, which ten years ago was 90 per cent. English and European, is now 50 per cent. American.

What is true of hardware and cutlery is equally true of nails, spikes, tacks, etc. American sales have increased between the two five-year periods from $1,200 per annum to $10,500; they exceed now those of our principal rival, England. Military firearms are, as already stated, purchased almost exclusively from Germany, but the trade in sporting arms is divided mainly between England and the United States. England still retains the lead, but her sales have remained stationary at $19,700 per annum, while those of the United States have grown from $8,000 to $13,800. Germany's contribution in this sort of arms amounts to only $1,000 per annum. Some French and Spanish arms are also sold, but their total amount is small.—*Special Agent Hutchinson.*

AMERICAN AND GERMAN RECIPROCITY

An informal reception was recently held at the Savoy Hotel in Berlin for the purpose of introducing Mr. Eugene Noble Foss, vice-president of the American Reciprocal Tariff League, to the members of the Association and of hearing a statement by Mr. Foss on the subject of reciprocal tariff relations between America and Germany. About sixty members and guests were present, including, besides the American Chargé d'Affiaires, Mr. Dodge, and Consul-General Thackara, Stadtrat Weigert, of the Aeltesten der Kaufmannschaft, Dr. Roghe, of the Berliner Handelskammer, Dr. Borghius, of the Handelsvertragsverein, Commerzienrat Jacob, of the Verband Berliner Kaufleute und Industrieller, Commerzienräte Hecht referred to the objec-Gause, and other prominent representatives, American and German, of commerce and industry.

The president of the Association, Mr. F. Hessenberg, introduced Mr. Foss, remarking that a satisfactory solution of the tariff question could not but substantially strengthen the existing friendly relations between the two countries.

Mr, Foss, who was greeted with applause, then delivered an address, which, though, on the whole, optimistic, was marked throughout by careful argumentation and an evident desire to be impartial. The latter spirit was particlarly shown in his reference to the newly concluded German treaties, which he characterized as far-seeing and scientific. He said in part:

"Being a manufacturer myself, I can readily appreciate the value of a foreign market, as it is fully appreciated by the East and West of the United States. The foreign market is even more valuable than the domestic market as safeguarding the domestic market. The McKinley bill was the best and a prudent measure, inasmuch as it contained a wise provision for reciprocity, 20 per cent. reduction of duty being allowed. In McKinley's opinion, the Republican party was committed to his bill, on the strength of which, the Casson treaty with France was negotiated, but failed to be ratified by the Senate."

The speaker expressed himself as ashamed of his party (Republican) for not carrying out its pledges. "We Americans must not take too much credit for our export trade of to-day, even if at present the largest in the world, for when we look into the character of the export trade, we find that 65 per cent. of the same is raw material, of which 25 per cent. alone is raw cotton. In 1880, 83 per cent. of trade in foreign products was raw material; to-day, it is only 55 per cent. The farmers are to-day manifesting greater interest in reciprocal agreement as to the tariff than ever before. The convention at Chicago organized the present American Reciprocal Tariff Reform League, which has money, has influence, and has come to stay: the New York branch of it has Mr. Gustav Schwab at its head. To-day, there are two great issues in the United States, namely, the "railroad rates bill" and "tariff reform," and although President Roosevelt is heartly in favor of the latter, he gave his attention first to the former as at present the most important of the two.

"The President said in one of his speeches: 'If treaties are not ratified, we must resort to legislation.' Public opinion in the United States on the tariff question is changing very rapidly, and the League will obtain by direct legislation a revision of the tariff on the maximum and minimum system, and this will provide for reciprocity. *The relations between the two greatest industrial countries in the world will not be broken* (applause). America was the first to put out a retaliatory tariff, and modifications in the American tariff will not be owing to the new German tariff, but such reductions will be made because America herself needs such reductions. My own company is paying 25 per cent. duty, and we should like to give this per cent. to Germany and enable the German manufacturer to put his goods on the market. There is no reason why the raising of beet sugar in the United States should be fostered, as half the beet sugar factories in the United States have failed, the farmers will not plant the sugar beet, and what is at present cultivated is done in Colorado by Russian and Japanese help. Let us give our meat products to Germany for its beet sugar. Although the United States is a world power, it is but a weakling in trade matters. We cannot afford to have a tariff which forbids customers to buy of us, such customers must also be allowed to make their profit. Your Association, gentlemen, is capable of doing a great work. Send over a delegation to us and let them tell the state of the market here. This reform is going to come. The McCleary bill does not represent the best sentiment in the stand-patting ranks. The question should be met fairly. The United States are selling Russia to-day, $18,000,000 worth of manufactured goods, a ridiculously small showing compared with the immense population of that country! The United States is the only nation taxing raw materials. We want the duty taken off hides, coal, iron and steel, to mention a few articles. The farming interests of the West have united with the manufacturers in demanding a revision of the tariff. Why Speaker Cannon has received from his constituents more letters lately respecting tariff relations than ever before in his life! Think of the fact of range cattle selling at Chicago for 3½ cents a pound! The German Government must not make the mistake of taxing meat products. Be sure, the farmers are going to turn the scale. By direct legislation, we mean revision of the tariff and new treaties empowering the President without the consent of the Senate to enter into reciprocal relations with other countries. We are aiming for a dual tariff, with provision for reciprocal treaties.

"Among the reasons that many senators have voted against any treaty or revision of the tariff are, that by doing so, the Senate would be violating the spirit of the Constitution, and would be encroaching on the prerogative of the House of Representatives, by which a measure can originate in the House only."

The address closed with an appeal to the Association to join heartily in the League's effort to bring about the desired reciprocal agreement.

Replying to the suggestion of Stadtrat Weigert, that the views just expressed were too sanguine, Mr. Foss said that such was not the case, inasmuch as it was the farmer who would decide the next election, and the farmers were in favor of tariff revision. Commerzienräte Hecht referred to the objectionable manner in which the tariff was worked in the American custom-house, and Mr. Foss said he must admit that the charge was justified, though at the same time it was only fair to add that an improvement in this respect had lately taken place, thanks chiefly to the efforts of the German Government.

Herr Roghe desired information as to how reciprocity was to be brought under present political circumstances in the United States? Mr. Foss explained that while it was not anticipated the two-thirds majority in the Senate requisite for passing a treaty would be obtainable, there was a good prospect of a simple majority, which would be sufficient for a tariff bill with the necessary empowering provisions. A cordial vote of thanks to Mr. Foss concluded an interesting and pleasant reception.—*Bulletin of the American Association of Commerce and Trade, Berlin.*

AMERICAN MACHINE TOOLS

United States Consul Brittain writes from Kehl, Germany, as follows: "Manufacturers of machine tools over Germany and France admit the excellence of the American product, and gain all possible information from our manufacturers. In a recent conversation with the chief machinist at the largest machine-tool factory in Alsace-Lorraine, I was shown a finely illustrated catalogue, printed on American paper. The machinist said he collected catalogues from the leading manufacturers of machine tools in America, and embodied what he considered the most attractive features of the American catalogues into his German catalogues. He says Americans occupy the first rank in the manufacture of machine tools, in consequence of their thorough knowledge of the business and their aptness in showing their machines to the best possible advantage.

"An illustration was given of a visit to America by the chief buyer for the largest machine-tool works in France. This gentleman says he visited fifty-two machine-tool works in the United States and was exceptionally pleased with the courteous treatment he received. Before visiting several of the works best known to him he placed small orders, thinking this would assist him by way of introduction and accord him some special advantages, but he found these advance baits unnecessary. As a result of this visit to America, I understand that the French company will place larger orders with several American firms.

"Much comment is made upon the German's reluctance to show his machines to strangers, especially when these strangers are foreigners. Here, would-be purchasers are often treated with suspicion and frequently refused admittance, or if admitted, are shown only a few machines. My informant says that even an expert cannot gain a secret knowledge by passing through a shop. Manufacturers gain much by treating would-be buyers courteously. I understand that the Krupps intend placing very large orders for machine tools this year."

IN THE ALAMEDA

Nearly every city thinks its own parks the most beautiful on the face of the earth. This pride it is that has given to Europe and America their magnificent recreation and pleasure grounds. The German points with pride at the Thier Garten in Berlin, and cries, "Match it if you can," whereupon the Parisian and the Londoner act the showman, with a wealth of gestures, proclaiming their own achievements. The New Yorker has his Central Park shrine, with which Belle Isle at Detroit, Fairmount Park at Philadelphia, Shaw's Gardens at St. Louis, Lincoln Park at Chicago, and a hundred others, are constantly being compared. With such a host of competitors, it would be a bold person who would claim for Mexico City's Alameda the first place. It can at least be said of the park, however, that it stands at the head in a land of riotous flowers and tropical growths.

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The car which obtained third place was a well-known French make of four-cylinder water-cooled machine. This car had a score of 180,642, as against 200,100 of the winner and 194,953 of the second car. It weighed 3,110 pounds and covered 46.2 miles, while the second car weighed 3,270 pounds and made 47.9 miles. The fourth machine was a large French car with a record for fuel economy; the fifth was an 18-passenger bus; and the sixth a light tonneau having the same make and size of engine as the winner. The cost of running per ton-mile of these first six cars, figured at fuel at twenty cents per gallon, is 0.613, 0.452, 0.538, 0.559, 0.500, and 0.640 of a cent respectively. A one-cylinder buckboard made 101.6 miles, and a single-cylinder tonneau carrying four people, 56.8 miles.—*Scientific American.*

EXPORT IMPLEMENT AGE

POUR LA CIRCULATION À L'ÉTRANGER EXCLUSIVEMENT.

Journal indépendant exclusivement consacré aux intérêts du commerce d'exportation des machines agricoles, pompes, moulins à vent, outils de fermes, fournitures pour crèmeries et articles spéciaux de quincaillerie.

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Dans le Répertoire d'adresses à l'usage des cheteurs, dans la première partie de ce livre nous donnons les renseignements en français; nous avons recours à ce moyen afin de faciliter la correspondance avec les maisons qui font insérer des annonces dans ce journal.

La question de l'aide dans la ferme est depuis des années une question irritante en Amérique et à la rareté des ouvriers de la terre nous devons dans une large mesure, la variété et l'excellence de nos outils agricoles. La nécessité est la mère de l'invention, et ce n'est que par l'emploi des machines modernes, remplaçant l'ouvrier, que le fermier américain peut cultiver et moissonner ses champs.

Nombre de nos manufacturiers américains sont si occupés à approvisionner le marché national, qu'ils ne prêtent jamais la moindre attention au commerce des autres pays. Pourtant nos principaux manufacturiers se sont parfaitement rendu compte des occasions superbes que leur offraient les marchés extérieurs, et ils ont établi des départements uniquement chargés de l'exportation et qui donnent un soin scrupuleux au commerce extérieur. C'est à cette classe qu'appartierrent les fabricants dont on trouve les announces dans "l'Export Implement Age," et nos lecteurs trouveront que leurs transactions commerciales sont toujours conduits avec promptitude et courtoisie.

Les fabricants américains d'outils agricoles sont contraints, de temps à autre, d'agrandir leurs établissements: La demande nationale et étrangère d'instruments agricoles est si grande que nos fabriques ont grand peine à y suffire. Durant les quelques mois qui viennent de s'écouler, nombre de nos plus vastes établissements ont dû travailler jour et nuit pour faire face à la demande. Un si grand nombre de bâtiments ont été ajouté ces quelques dernières années, à ceux existant déjà, que l'on peut dire que toutes nos fabriques sont neuves, modernes jusqu'an moindre détail. On installe partout l'outillage le plus perfectionné, et l'on emploie des machines qui font le travail de nombreux mécaniciens.

Inventions dues à de tout jeunes gens

Le capitaine Cody, l'inventeur du cerf-volant aéroplane, qui exhibitait récemment, au Palais de Cristal, ses nouvelles machines volantes capables de soulever un homme, ne fut pas peu surpris de voir le matin même de l'essai, deux modèles de son invention, s'élever soudain dans l'air et venir flotter, de l'extérieur, au-dessus de l'enceinte qui lui était réservée. Des recherches subséquentes, dit le *Parson's Weekly* prouvèrent que deux petits modèles avaient été construits par deux tout jeunes gens qui, lors d'une visite au palais de Cristal quelques jours auparavant, avaient pris des notes mentales sur les principes qui servaient de base à la machine de M. Cody.

Les jeunes garçons avaient vidé leurs porte-monnaie pour l'achat des matériaux, avaient employé leurs moments perdus à monter les cerfs-volants, et avaient utilisé la spacieuse cour à charbon de la gare de Penge Railway pour la conduite de leurs expériences préliminaires.

Sir John Brown qui fit les premières plaques laminées pour navires de guerre, n'avait que seize ans lorsque la vue d'une voiture actionée par un ressort à boudin dans une foire de village, lui suggéra l'idée du ressort à boudin conique pour truck de chemin de fer, dont après une longue lutte, il fit une fortune.

Eli Whitney, l'inventeur de la machine à éplucher le coton, trouva le germe de sa grande idée en voyant à travers les interstices d'une hutte, un vieux nègre manœuvrer une scie dans du coton nouvellement cueilli et emmagasiné à l'intérieur.

Les dents de la scie séparaient aisément et vite la filasse des graines, et le jeune Whitney (il n'avait alors que treize ans) se dit qu'une machine qui actionnérait un grand nombre de scies à la fois révolutionnerait l'industrie du coton.

Il ne dit rien à personne mais se mit au travail, construisant des modèles, expérimentant. Les obstacles qu'il rencontra furent nombreux, car il devait non seulement fabriquer ses propres roues, dents et le reste, mais encore forger ses propres outils et même fabriquer la peinture qui lui servait à colorer ses nombreux plans et dessins.

Mais il réussit à la fin, et bien que la guerre et d'autres obstacles firent que l'invention ne pût entrer sur la marché que bien des années plus tard, la première machine à éplucher le coton vraiment complète fut construite d'après ces modèles et ces plans et pour ainsi dire sans modification aucune.

A Athercliffe, près de Sheffield, vivait en 1760 un horloger nommé Huntsman dont le sang-froid avait été souvent mis à l'epreuve par la mauvaise qualité des ressorts de montre alors en usage.

Il se demandait quelquefois s'il ne serait pas possible de faire ces articles d'une nature homogène, et il en vint à conclure que s'il pouvait seulement réussir à fondre un morceau d'acier et à le mouler en lingot, sa composition serait homogène.

Il fit des expériences et finalement réussit. L'offre créa la demande. Huntsman, ne tardait pas à fabriquer des lingots, d'acier par certaines de tonnes et à faire fortune.

Les ouvriers des fabriques recevaient un salaire éléev et juraient de garder le secret. Et ils ne le trahirent jamais—jamais sciemment du moins.

Mais par une rigoureuse nuit d'hiver, ils donnèrent abri à un jeune garçon blême, à demigelé, portant un costume de velours à côtes délabré. Il ne posa point de questions. En vérité il parut sommeiller presque tout le temps qu'il fut là dans l'éclat chaud des fourneaux.

Néanmoins, il emporta avec lui en partant le secret du moulage de l'acier, et au bout d'une demi-douzaine de semaines il y avait à Sheffield une demi-douzaine de fabriques exploitant le nouveau procédé.

Samuel Crompton, un jeune garçon de seize ans, copia les traits essentiels du métier à filer inventé par Hargreaves et Arkwright, introduisit quelques traits nouveaux, et après trente mois d'expériences anxieuses et secrètes, il produisit la première mule-jenny, ainsi dénommée parce que la machine était une sort d'hybride entre la "jenny" de Hargreaves et le bâti à eau d'Arkwright.

Le jeune apprenti ne fut pas toutefois assez malin pour les grands seigneurs du coton, qui trouvèrent bientôt le secret de sa nouvelle ma-

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The score of each car was obtained by multiplying the total weight of the car when loaded (to which weight 800 pounds were arbitrarily added) by the distance run. Thus, in reality, the contest was placed on the ton mile basis, which would cause the large, heavy cars to win over those of lighter weight if the former were not handicapped. This it seemed, must be so, since ordinarily gas consumption does not increase directly with weight, and a heavy car is found to be much cheaper to run per ton mile than a light car. Despite this well-known fact, the committee in charge penalized the light cars by taking the weight of all two cylinder machines as but 75 per cent of their actual weight, and that of the single cylinder cars as but 70 per cent. The test favored the heavy, four cylinder cars, therefore, and it seemed well nigh impossible that any other type of car could win. The surprising result was, however, that the winner happened to be a four-cylinder light-weight runabout of the air-cooled type, a car which is a distinctively American invention. This machine, weighing with driver and observer 1,500 pounds, ran from Fifty-seventh street and the East River, New York City, to Hartford, Conn., a distance of 87 miles, upon two gallons of gasoline, at an average speed of 17½ miles an hour. When the fact is considered that the first 35 miles of road were in a very muddy condition owing to a cloudburst occuring while the car was traversing them, it seems quite possible that a distance of 90 miles, or 45 miles per gallon, could have been covered had the road been dry. The automobile editor of the *Scientific American*, who had the pleasure of being the observer on the winning car, believes that the distance could readily have been covered in fair weather and with dry roads, in view of the facts that the low speed had to be used on a considerable number of hills that could otherwise have been mounted on the high gear, and that the dampness of the air necessitated the opening of the needle valve of the carbureter more than is required on a pleasant day.

The car that won the second prize was likewise one of the latest types of air-cooled cars that American ingenuity has devised and perfected. The distinctive feature of this car's motor is that the cylinders are incased in aluminum jackets, through which air is forced by a powerful gear driven blower, while in contradistinction to this system the motor of the winning runabout is cooled only by the natural draft of air as the car moves forward, the motor in this case being placed transversely at the front of the car and also being provided with auxiliary mechanically-operated exhaust valves, to aid in the quick expulsion of the burnt bases. The needle valve of the carbureter also can be adjusted from the driver's seat. This is a very good feature that is found on scarcely any other make of car. A car of the same make as the winner holds the transcontinental record which was made in less than thirty three days.

The car which obtained third place was a well known French make of four cylinder water cooled machine. This car had a score of 180,042, as against 200,100 of the winner and 194,953 of the second car. It weighed 3,110 pounds and covered 46.2 miles, while the second car weighed 3,270 pounds and made 47.0 miles. The fourth machine was a large French car with a record for fuel economy; the fifth was an 18-passenger bus; and the sixth a light tonneau having the same make and size of engine as the winner. The cost of running per ton mile of these first six cars, figured at fuel at twenty cents per gallon, is 0.013, 0.452, 0.538, 0.550, 0.500, and 0.640 of a cent respectively. A one-cylinder buckboard made 101.0 miles, and a single-cylinder tonneau carrying four people, 50.8 miles.—*Scientific American.*

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Dans le Répertoire d'adresses à l'usage des cheteurs, dans la première partie de ce livre nous donnons les renseignements en français; nous avons recours à ce moyen afin de faciliter la correspondance avec les maisons qui font insérer des annonces dans ce journal.

La question de l'aide dans la ferme est depuis des années une question irritante en Amérique et à la rareté des ouvriers de la terre nous devons dans une large mesure, la variété et l'excellence de nos outils agricoles. La nécessité est la mère de l'invention, et ce n'est que par l'emploi des machines modernes, remplaçant l'ouvrier, que le fermier américain peut cultiver et moissonner ses champs.

Nombre de nos manufacturiers américains sont si occupés à approvisionner le marché national, qu'ils ne prêtent jamais la moindre attention au commerce des autres pays. Pourtant nos principaux manufacturiers se sont parfaitement rendu compte des occasions superbes que leur offraient les marchés extérieurs, et ils ont établi des départements uniquement chargés de l'exportation et qui donnent un soin scrupuleux au commerce extérieur. C'est à cette classe qu'appartierrent les fabricants dont on trouve les announces dans "l'Export Implement Age," et nos lecteurs trouveront que leurs transactions commerciales sont toujours conduits avec promptitude et courtoisie.

Les fabricants américains d'outils agricoles sont contraints, de temps à autre, d'agrandir leurs établissements: La demande nationale et étrangère d'instruments agricoles est si grande que nos fabriques ont grand peine à y suffire. Durant les quelques mois qui viennent de s'écouler, nombre de nos plus vastes établissements ont dû travailler jour et nuit pour faire face à la demande. Un si grand nombre de bâtiments ont été ajouté ces quelques dernières années, à ceux existant déjà, que l'on peut dire que toutes nos fabriques sont neuves, modernes jusqu'au moindre détail. On installe partout l'outillage le plus perfectionné, et l'on emploie des machines qui font le travail de nombreux mécaniciens.

Inventions dues à de tout jeunes gens

Le capitaine Cody, l'inventeur du cerf-volant aéroplane, qui exhibitait récemment, au Palais de Cristal, ses nouvelles machines volantes capables de soulever un homme, ne fut pas peu surpris de voir le matin même de l'essai, deux modèles de son invention, s'élever soudain dans l'air et venir flotter, de l'extérieur, au-dessus de l'enceinte qui lui était réservée. Des recherches subséquentes, dit le *Parson's Weekly* prouvèrent que deux petits modèles avaient été construits par deux tout jeunes gens qui, lors d'une visite au palais de Cristal quelques jours auparavant, avaient pris des notes mentales sur les principes qui servaient de base à la machine de M. Cody.

Les jeunes garçons avaient vidé leurs porte-monnaie pour l'achat des matériaux, avaient employé leurs moments perdus à monter les cerfs-volants, et avaient utilisé la spacieuse cour à charbon de la gare de Penge Railway pour la conduite de leurs expériences préliminaires.

Sir John Brown qui fit les premières plaques laminées pour navires de guerre, n'avait que seize ans lorsque la vue d'une voiture actionée par un ressort à boudin dans une foire de village, lui suggéra l'idée du ressort à boudin conique pour truck de chemin de fer, dont après une longue lutte, il fit une fortune.

Eli Whitney, l'inventeur de la machine à éplucher le coton, trouva le germe de sa grande idée en voyant à travers les interstices d'une hutte, un vieux nègre manœuvrer une scie dans du coton nouvellement cueilli et emmagasiné à l'intérieur.

Les dents de la scie séparaient aisément et vite la filasse des graines, et le jeune Whitney (il n'avait alors que treize ans) se dit qu'une machine qui actionnerait un grand nombre de scies à la fois révolutionnerait l'industrie du coton.

Il ne dit rien à personne mais se mit au travail, construisant des modèles, expérimentant. Les obstacles qu'il rencontra furent nombreux, car il devait non seulement fabriquer ses propres roues, dents et le reste, mais encore forger ses propres outils et même fabriquer la peinture qui lui servait à colorer ses nombreux plans et dessins.

Mais il réussit à la fin, et bien que la guerre et d'autres obstacles firent que l'invention ne pût entrer sur la marché que bien des années plus tard, la première machine à éplucher le coton vraiment complète fut construite d'après ces modèles et ces plans et pour ainsi dire sans modification aucune.

A Attercliffe, près de Sheffield, vivait en 1760 un horloger nommé Huntsman dont le sang-froid avait été souvent mis a l'epreuve par la mauvaise qualité des ressorts de montre alors en usage.

Il se demandait quelquefois s'il ne serait pas possible de faire ces articles d'une nature homogène, et il en vint à conclure que s'il pouvait seulement réussir à fondre un morceau d'acier et à le mouler en lingot, sa composition serait homogène.

Il fit des expériences et finalement réussit. L'offre créa la demande. Huntsman, ne tardait pas à fabriquer des lingots, d'acier par certaines de tonnes et à faire fortune.

Les ouvriers des fabriques recevaient un salaire éléev et juraient de garder le secret. Et ils ne le trahirent jamais—jamais sciemment du moins.

Mais par une rigoureuse nuit d'hiver, ils donnèrent abri à un jeune garçon blême, à demigelé, portant un costume de velours à côtes délabré. Il ne posa point de questions. En vérité il parut sommeiller presque tout le temps qu'il fut là dans l'éclat chaud des fourneaux.

Néanmoins, il emporta avec lui en partant le secret du moulage de l'acier, et au bout d'une demi-douzaine de semaines il y avait à Sheffield une demi-douzaine de fabriques exploitant le nouveau procédé.

Samuel Crompton, un jeune garçon de seize ans, copia les traits essentiels du métier à filer inventé par Hargreaves et Arkwright, introduisit quelques traits nouveaux, et après trente mois d'expériences anxieuses et secrètes, il produisit la première mule-jenny, ainsi dénommée parce que la machine était une sort d'hybride entre la "jenny" de Hargreaves et le bâti à eau d'Arkwright.

Le jeune apprenti ne fut pas toutefois assez malin pour les grands seigneurs du coton, qui trouvèrent bientôt le secret de sa nouvelle ma-

chine et le dépouillèrent sans scrupule des fruits de son génie.

Bien des années plus tard, il est vrai, ils employéernt leur influence à obtenir pour lui du Parlement un don de 5,000 livres sterlings, mais il n'était plus alors qu'un homme profondément abattu, désappointé, et l'argent vint trop tard pour lui être d'un réel service.

Les inventions de feu Sir Isaac Holden, relatives à l'industrie du cardage de la laine, ont presque effacé de la mémoire du public le fait qu'il fut aussi l'inventeur des allumettes.

La découverte eut lieu alors qu'il occupait la chaire de chimie à la Castle Street Academy, à Reading. Il avait coutume de se lever à 4 heures du matin pour poursuivre ses études, et il trouvait l'ordinaire briquet extrêmement incommode. Si bien qu'un jour il fit une pâte de phosphore et d'autres substances, en imprégna l'extrémité d'un morceau de bois et trouva que la pâte s'enflammait si on la frottait sur quelque surface rude au toucher.

Holden lui-même ne se rendit pas compte de l'importance de sa découverte. Mais il n'en fut point ainsi d'un de ses élèves auquel il la montra. Ce jeune garçon, qui était le fils d'un fabricant londonnien de produits chimiques, en informa immédiatement son père, et peu de temps après le monde connaissait les allumettes.

On destinait Lord Armstrong, dans sa jeunesse, à l'étude du droit, mais près du bureau où il travaillait se trouvait une roue hydraulique d'une structure curieuse, et son propriétaire expliqua son mécanisme au jeune questionneur. Il lui fit également part d'une idée à lui et qui aurait consisté à utiliser la force des chutes d'eau pour élever de grands poids.

Ces quelques brèves paroles donnèrent à penser au jeune Armstrong. Un peu plus tard il se mit à expérimenter. Et de ses expériences sortit dans la suite cette énorme et puissante grue hydraulique qui a rendu possible les ambitieuses entreprises du constructeur moderne.

Et en dernier lieu, enfin, citons le cas, merveilleux entre tous, du jeune Italien Gugliemo Marconi qui, voyant un prestidigitateur accomplir certains tours par l'entremise de quelque source electrique, put naguère étonner le monde par la télégraphie sans fil.

Ses premières expériences eurent lieu dans un champ sur la ferme de son père, et son appareil consistait tout bonnement en boites à biscuit en fer blanc, disposées sur des poteaux de diverses hauteurs, l'une desquelles était reliée à un transmetteur grossier, de sa propre fabrication.

Cela se passait en 1886, alors qu'il était dans sa quartorzième année, et à l'âge de 21 ans, adolescent timide, modeste, imberbe, il expliquait à Londres, à un auditorie composé des plus grands savants de notre époque, la plus grande découverte du siècle.

Emigration d'Europe

Le sujet de l'immigration n'a jamais été plus important pour les Etats-Unis qu'à l'heure actuelle. Les champs, les ateliers, les manufactures de notre pays ont besoin d'une plus grande somme de main d'œuvre. D'où viendra-t-elle, voilà la question, l'intéressante question. L'émigration de l'Europe du nord a diminué: puis les fils de l'Italie, en armeés paisibles, sont venus à notre aide. Mais l'émigration, de ce côté encore, s'arretéra bientôt, car l'Italie se dépeuple. Reste un autre pays méditterranéen, l'Espagne, qui n'a pas encore contracté la fivre de l'émigration pour les Etats-Unis. Moins de deux Espagnols sur 1,000 quittèrent leur pays pour l'étranger en 1904, alors que cette année-là plus de sept Irlandais sur 1,000 quittaient leur ile natale, et un plus grand nombre encore d'Italiens leur péninsule. Le rapport suivant de M. Harmony, consul à La Corogne, sera donc d'un haut interêt pour les Américains:

"En Espagne les provinces maritimes sont les plus abondantes sources d'émigration. Pourtant la population des côtes a augmenté, tandis que celle des provinces intérieures qui ne aire. En 1904, 98,394 personnes quittèrent tivement beaucoup moindre et demeure station- fournissent que peu d'émigrants est compara- l'Espagne par mer et 71,254 y entrèrent. Ces totaux comprennent le mouvement important entre l'Espagne et l'Afrique, la France et Gibraltar. L'excès de l'émigration sur l'immigration en Espagne provient des provinces les plus peuplées et dont la population continue à augmenter. Et si l'on tient à comparer l'émigration de ce pays avec l'émigration fournie par d'autres pays européens, l'Institut géographique et statistique d'Espagne nous donne les chiffres suivants: Irelande, 7.37 émigrants par 1,000 habitants, et Espagne 1.82 par 1,000.

On ne peut obtenir de chiffres exacts quant au total des sommes importantes envoyées ou apportées en Espagne par des personnes qui ont émigré en Amérique, mais il est avéré qu'une maison de banque de la Corogne paya, en 1904, 2,200,000 dollars par des chèques provenant d'Amérique, et cela indépendamment de toute transaction commerciale. La même année, la banque de Rio de la Plata paya 8 millions de dollars en lettres de change. On peut donc conclure que dans l'année 1904 16 millions de dollars furent envoyés ou apportés dans ce pays par des Espagnols ayant émigré au nouveau monde."

M. Westacott, vice-consul général à Londres, fournit le rapport suivant sur l'emigration du Royaume Uni au cours de l'année passée:

"Le nombre total des émigrants de la Grande Bretagne et de l'Irelande pour 1905 a été de 459,917, soit une augmentation de 6,040 sur 1904. Il y a eu 9,197 émigrants anglais et irlandais de moins, mais 15,237 émigrants étrangers de plus. L'émigration anglaise et irlandaise aux colonies britanniques montre que 82,457 personnes se rendirent au Canada en 1905, soit une augmentation de 17 pour cent sur l'année précédente; 15,181 personnes, en Mélanésie; 26,283, dans l'Afrique du Sud anglaise; 4,716 aux Indes et 4,458 dans d'autres colonies. Le chiffre des émigrants anglais et irlandais aux Etats-Unis, l'année dernière, s'est élevé a 122,398, ce qui represente une diminution de 17 pour cent, et aux autres pays étrangers, à 6,754. L'émigration des étrangers dans le Royaume Uni, a été de 43 pour cent du nombre total: 459,917. De ce nombre 25,688 se rendirent dans l'Amérique anglaise du nord et 10,588 dans les autres colonies anglaises, 154,325 aux Etats-Unis (augmentation de 6 pour cent sur l'année précédente) et 7,078 dans d'autres pays étrangers. De plus, 196,529 immigrants, provenant du continent, arriverent dans le Royaume Uni en 1905, ce qui represente une augmentation de 1,543 sur 1904. Plus de la moitié de ces étrangers ne faisaient que passer et se rendaient dans d'autres pays; 108,347 continuaient leur voyage. Cette immigration étrangère du continent devient un problème serieux pour la Grande Bretagne: elle a été cause de la loi de l'exclusion partielle (publiée dans les Rapports consulaires et commerciaux du 10 février). Toutefois le flot de l'immigration n'était pas si volumineux en 1905 que l'année précédente, mais 74,409 immigrants restèrent dans le pays, en 1904, il en était resté 82,845."

Il y a, dans le monde, un phare qui n'est pas indiqué sur les cartes marines. Il se dresse dans le désert d'Arizona et marque l'endroit où les voyageurs peuvent trouver un puits de bonne eau douce.

Rapports sur les recoltes

Un projet de réorganisation du système en usage pour obtenir des rapports sur les récoltes a été soumis à la commission agricole du Congrés par M. Hayes, secrétaire adjoint du département de l'agriculture. Il s'agirait de corriger, si possible, les défauts du système, et de le perfectionner de manière que des statistiques exactes sur la condition des récoltes et les résultats définitifs, de mois en mois, pussent être obtenues et reportées par le gouvernement. La trait principal du nouveau projet consiste en ce qu'il cherche à abandonner l'ancienne méthode de puiser à diverses sources les rapports sur les conditions des récoltes et de les rassembler à Washington où ils sont soumis au jugement d'un seul homme, le chef du bureau des statistiques.

Si le Congrès adopte le projet de M. Hayes, les frais annuels des rapports sur les récoltes seront portés de 19,000 dollars à 250,000 dollars. Cette augmentation sera nécessitée par l'abandon du procédé actuel qui recueille les statistiques sur les moissons par état et par comté; il faudra créer, à sa place, environ trentecinq chefs de district, qui travailleront de concert avec les fonctionnaires des bureaux méteorologiques aux principales stations de chaque état.

Un chef de district sera désigné pour chacun des principaux états qui produisent des céréales et du coton, et recueillera les rapports des rapporteurs des communes (townships), ces chefs de district voyageront également dans leurs districts respectifs et recueilleront des faits directement. Les rapports du comté contiueront à venir au département de l'agriculture à Washington. Le comité d'estimation des récoltes sera maintenu, mais les évaluations définitives seront faites, dans la plupart des cas, par les chefs de district.

En plus de la nouvelle disposition pour obtenir les rapports des districts, le système comprendait un certain nombre d'agents spéciaux qui voyageraient dans tout le pays et aideraient autant que possible les chefs de district à obtenir des renseignements exacts sur les conditions des récoltes. Mais il s'agit maintenant de savoir si le Congrès voudra faire ces changements et accepter les frais supplémentaires qu'ils exigeraient, alors même qu'on serait certain d'obtenir par la nouvelle méthode des renseignements plus exacts.

Usage industriel du cheval

Aucune créature du règne animal n'a autant contribué que le cheval à débarrasser l'homme des travaux pénibles. Le génie inventif de l'homme créa des outils agricoles grossiers qui, dès le début de la race humaine, assurèrent la persistance du plus apte.

La culture des terres par le travail manuel se pratiquait sur une étendue limitée, et les opérations étaient si restreintes que le surplus des produits accumulés dans les temps primitifs n'aurait pu maintenir la population dans les villes. Dès que le sol était remué et que les semences étaient mises en terre, il s'élevait un conflit entre les mauvaises herbes et les plantes alimentaires, si indispensables a l'entretien de la vie. Le travail qu'exigeait la culture d'une petite étendue de terre était énorme, et tous les hommes étaient contraints de se faire cultivateurs.

L'homme est carnivore en même temps qu'herbivore, et compose son menu des produits des troupeaux aussi bien que des produits des champs. Mais les outils agricoles primitifs, manœuvrés à la main, ne permettaient de cultiver qu'une faible étendue de terre. Pendant des siècles les céréales furent moissonnées avec la faucille, et les glaneurs suivaient les moissonneurs et ramassaient le grain qui restait sur le sol. La faux succéda à la faucille, mais de vastes champs de blé ne furent possibles qu'après l'invention de la moissonneuse, actionnée par des chevaux, une seule machine faisant le travail de dix hommes.

Dans toutes les branches de la culture pratique de la terre, le cheval est le pionnier du succès. Attelés à une charrue multiple, une paire de chevaux de traits pulvériseront autant de sol que vingt hommes. Muni d'une herse, d'une semoir et d'une moissonneuse, un seul homme devient une multitude quand on compare son travail à celui qui se faisait dans l'agriculture primitive. Avec la faucheuse, le râteau, le chargeur automatiques actionnés par le cheval, la recolte du foin est mise en grange avec une rapidité à laquelle il serait impossible d'atteindre avec le seul travail à la main. Eliminez le cheval de l'agriculture, et la civilisation rétrogradera vers les temps primitifs.

Et ce n'est pas seulement en agriculture, c'est dans toutes les branches de l'industrie requérant une force économique et effective que le cheval est indispensable. Le cheval a rendu une vaste métropole possible par le fait qu'il est un grand facteur de production en agriculture et qu'il met en circulation rapide les marchandises des villes. Dans les villes, en agriculture, dans les entreprises industrielles, pour le transport des marchandises, rien n'a encore pu supplanter le cheval, et son importance, loin de diminuer, ne fera sans doute que croitre avec les progrès de la civilisation moderne.—*Drovers' Journal.*

Commerce de l'Amérique avec l'Europe

Les deux tiers des exportations américaines, l'année dernière, se rendirent en Europe, et la moitié de nos importations nous vinrent d'Europe; nous avions donc à notre avantage une balance du commerce de 16 pour cent environ.

Pendant six années les exportations des Etats-Unis se sont élevées, en moyenne, à un peu plus d'un milliard de dollars par an, tandis que les exportations du reste du globe ne s'élevaient qu'à un peu moins d'un demi milliard de dollars.

Malgré l'immense volume de nos exportations en Europe, l'année dernière, 239 millions de dollars de produits manufacturés et 782 millions de dollars produits alimentaires et de matériaux pour manufacturiers—le pourcentage de ces exportations, quand on les compare aux exportations totales, est descendu au chiffre le plus bas que nous ayons vu depuis la Guerre civile.

Pendant vingt années, de 1866 à 1885, le pourcentage de nos exportations en Europe s'est élevé au 80 pour cent des exportations totales. De 80 pour cent en 1885, il descendait à 77 en 1895, pour tomber à 67 en 1905.

Le fait est que les Etats-Unis deviennent plus cosmopolites dans leur commerce et qu'ils expédient des quantités de produits de plus en plus grandes au Canada, en Orient, dans l'Amérique latine, aux divers marchés du Pacifique.

Nos exportations en Asie et en Océanie qui pendant l'existence des traités de réciprocité, atteignaient un chiffre élevé, tombaient à 8 pour cent en 1880 après l'abolition de ces traités; mais elles reprennent toutefois et s'élèvent aujourd'hui à 16 pour cent des exportations totales.

Nos exportations en Asie et en Océanie qui en 1880 n'étaient que 2 pour cent des exportations totales, 4 pour cent en 1890 et 7½ pour cent en 1900, dépassaient le 10 pour cent des exportations totales en 1905 et s'éleveront approximativement au 20 pour cent. du total d'ici dix ans. Que cette évaluation n'a rien d'exagéré est évident par le fait que les exportations américaines dans l'Asie seule se son élevées de 55 millions de dollars en 1903 à 136 millions en 1905, soit un gain net de 80 millions de dollars, ce qui représente le 150 pour cent en deux ans.

Le pourcentage de nos importations d'Europe est également sur le déclin. La raison principale en est que, dans ces dernières années, les produits dont nous avons besoin sont des substances alimentaires et des matières premières qui viennent des pays neufs, tandis que les produits manufacturés viennent de l'ancien monde. La demande des produits tropicaux et sous-tropicaux est grande, tels que thé, soie brute, épices de l'Asie; sucre, café, fibres de bois de l'Océanie d' et autres produits de ce genre et des fruits de l'Amérique latine. Les importations de cette catégorie ont atteint une valeur un peu supérieure à 200 millions de dollars en 1885, de 300 millions de dollars en 1895 et de plus de 500 millions de dollars en 1905.

Un des effets marqués d'un déclin dans le pourcentage de notre commerce extérieur avec l'Europe, est le développement du commerce passant par nos ports du Pacifique, du Golfe du Mexique et de nos frontières nord et sud; jadis les ports de l'Atlantique avaient le monopole du commerce.

Par exemple, les exportations passant par les ports de l'Atlantique tombaient de un milliard 7 millions de dollars en 1900 à 978 millions en 1905, tandis que les exportations des ports du Golfe du Mexique augmentaient de 25 pour cent, celles des ports de nos frontières du nord de 55 pour cent et celles des ports du Pacifique de 65 pour cent.

Bref, les ports du Pacifique, du Golfe du Mexique et les ports frontières qui ne recevraient que 25 pour cent des exportations du pays en 1895 et 30 pour cent en 1900, en recevaient 40 pour cent durant les douze mois prenant fin au 31 décembre 1905, tandis que les exportations passant par les ports de l'Atlantique, de 75 pour cent des exportations totales en 1895 n'étaient plus que de 60 pour cent en 1905.

Encore cinq années de développement du commerce américain avec l'Asie, le Canada et l'Amérique latine, et la moitié des exportations totales passera par des ports autres que ceux de l'Atlantique. *(Commercial West.)*

Immensité de New York

New York est aux Etats-Unis, dit le *Star* de Kansas City, ce que l'abbaye de Westminster est à l'empire britannique, l'expression ultime du génie et du caractère du peuple, atteinte sans effort conscient et perfectionnée par l'inévitable modeleur, le temps. Les Anglais ont les os de Chattam dans l'abbaye, mais cachée quelque part dans Wall Street, blanchie par l'âge et silencieuse, se trouve la salle où George Washington, entrant dans ses hautes fonctions, prêta serment.

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La Suiza es uno de los paises más notables del mundo. Su población asciende á 3.315.343 almas, su comercio con el extranjero á mas de $400.000.000, siendo 230.338.730 sus importaciones y $170.055.504 sus exportaciones. La prosperidad de Suiza depende en gran parte de la prosperidad del mundo exterior. Los visitadores extranjeros que la frecuentan dejan de $30.000.000 á $40.000.000 cada año en el pais. A pesar de ser un país en extremo montañoso, sus tierras están esmeradamente cultivadas, y los suizos les hacen rendir una inmensa producción en cereales, legumbres, frutas y vinos.

Todas las reglas tienen sus excepciones; pero puede asegurarse que ningún instrument ó máquina imperfecta sale jamas de una fábrica de instrumentos agricolas americana. Los hábiles e inteligentes mecanicos empleados en los establecimientos manufactureros de maquinaria de hacienda saben muy bien que no les tendria cuenta á ellos ni á los dueños de las fábricas el permitir que saliese un material y una mano de obra imperfectos de cualquiera de sus departaments.

Automóviles

Se cree generalmente que la industria fabril automoviliaria llegará á tener su mayor importancia como productora de pesados juegos de ruedas de motor y otros vehículos usados en los negocios. El censo de la industria carruajera publicado por el Gobierno en 1900, sin embarco, no apoya semejante creencia. Ni la apoya tampoco la estadistica de la industria carruajera de años anteriores desde 1850.

En 1900 el valor de los carruajes para el uso de familia y para pasear fabricados en este pais se elevó a $51.504.176, y su número a 907.482. El numero de carros, carretones, etc. usados para los negocios, las haciendas y por el Gobierno general y municipal llegó solamente 575.351, á los cuales se puede añadir 2,316 vehiculos púplicos, dando un valor total de $32.027.787 ó unas tres quintas partes del valor de los carruajes de familia y de recreo. Los trineos y rastras, en número de 118,222, no se incluyen en estos guarismos. Estos añadirian $2.324.600, principalmente á la producción de recreo. Pero, por otra parte, fueron fabricados 23.014 carretones, carretas y juegos de ruedas por los fabricantes de instrumentos agricolas y un buen número de semejants vehiculos por los herreros y carreteros de todo el pais.

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Una condicion semejante se observará sin duda alguna cuando los vehiculos de motor sean tan communes como los automóviles corrientes. A no ser que se haga el carretón de motor para el tráfico mercantil tan fuerte que dure dos veces más que el automóvil de paseo en el actual periodo de su desarrollo, no es probable que obtenga la popularidad que esperan los que especulan sobre este ramo de la industria automoviliaria.

El caso parece ser poco más ó menos el siguiente: Mientras más corta sea la duración del vehiculo de motor para los negocios, más lenta será su introducción general, y por otra parte, mientras mas larga sea su vida, menor será el número que se requiera fabricar cada año para satisfacer la demanda corriente. Desde cualquier punto de vista que se considere la duración del vehiculo de motor para el tráfico, comparándolo con el más rápido automóvil corriente, la estadistica de la industria carruajera parece apoyar la creencia de que el fabricante de vehiculos de motor para el tráfico no podrá nunca superar la magnitud del ramo de la industria automoviliaria que florece en la actualidad.

Sin embargo, puesto que la industria fabril de vehiculos de motor para el tráfico está hoy muy atrasada, produciendo tal vez solo unos 1,500 vehiculos hasta la fech contra unos 10,000 automoviles al año (1905-1906) en un periodo oí tremenda actividad en la fabricación de vehiculos es una de las atractivas posibilidades industriales de la siguiente década, pero una posibilidad que parece aconsejar la prudencia se considere que al fin y al cabo se puede esperar que la produccion de esta clase de vehiculos ha de ser mucho menor que la producción anual de vehiculos de recreo.

El automóvil ha traido curiosos cambios en el aspecto de todo el tráfico de recreo. Personas á quienes nunca se les habia ocurrido tener un calesin de cuatro ruedas y un caballo compran hoy un nuevo automóvil todos los años. El negocio del vehiculo de motor para el tráfico comercial puede producir sorpresas análogas. La analogia de la industria carruajera es, pues, convincente. Tiene más especialmente un flaco punto que se deberá considerarse como favorecedor de una producción mayor de vehiculos de motor para el tráfico dix ans. Que cette évaluation n'a rien d'exagéré est évident par le fait que les exportations américaines dans l'Asie seule se son élevées de 55 millions de dollars en 1903 à 136 millions en 1905, soit un gain net de 80 millions de dollars, ce qui représente le 150 pour cent en deux ans.

Le pourcentage de nos importations d'Europe est également sur le déclin. La raison principale en est que, dans ces dernières années, les produits dont nous avons besoin sont des substances alimentaires et des matières premières qui viennent des pays neufs, tandis que les produits manufacturés viennent de l'ancien monde. La demande des produits tropicaux et sous-tropicaux est grande, tels que thé, soie brute, épices de l'Asie; sucre, café, fibres de bois de l'Océanie d' et autres produits de ce genre et des fruits de l'Amérique latine. Les importations de cette catégorie ont atteint une valeur un peu supérieure à 200 millions de dollars en 1885, de 300 millions de dollars en 1895 et de plus de 500 millions de dollars en 1905.

Un des effets marqués d'un déclin dans le pourcentage de notre commerce extérieur avec l'Europe, est le développement du commerce passant par nos ports du Pacifique, du Golfe du Mexique et de nos frontières nord et sud; jadis les ports de l'Atlantique avaient le monopole du commerce.

Par exemple, les exportations passant par les ports de l'Atlantique tombaient de un milliard 7 millions de dollars en 1900 à 978 millions en 1905, tandis que les exportations des ports du Golfe du Mexique augmentaient de 25 pour cent, celles des ports de nos frontières du nord de 55 pour cent et celles des ports du Pacifique de 65 pour cent.

Bref, les ports du Pacifique, du Golfe du Mexique et les ports frontières qui ne recevraient que 25 pour cent des exportations du pays en 1895 et 30 pour cent en 1900, en recevaient 40 pour cent durant les douze mois prenant fin au 31 décembre 1905, tandis que les exportations passant par les ports de l'Atlantique, de 75 pour cent des exportations totales en 1895 n'étaient plus que de 60 pour cent en 1905.

Encore cinq années de développement du commerce américain avec l'Asie, le Canada et l'Amérique latine, et la moitié des exportations totales passera par des ports autres que ceux de l'Atlantique. *(Commercial West.)*

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En 1900 el valor de los carruajes para el uso de familia y para pasear fabricados en este pais se elevó á $51.504.176, y su número á 907.482. El número de carros, carretones, etc. usados para los negocios, las haciendas y por el Gobierno general y municipal llegó solamente 575.351, á los cuales se puede añadir 2,316 vehiculos púplicos, dando un valor total de $32.627.787 ó unas tres quintas partes del valor de los carruajes de familia y de recreo. Los trineos y rastras, en número de 118,222, no se incluyen en estos guarismos. Estos añadirian $2.324.600, principalmente á la producción de recreo. Pero, por otra parte, fueron fabricados 23.914 carretones, carretas y juegos de ruedas por los fabricantes de instrumentos agricolas y un buen número de semejants vehiculos por los herreros y carreteros de todo el país.

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Una condición semejante se observará sin duda alguna cuando los vehiculos de motor sean tan comunes como los automóviles corrientes. A no ser que se haga el carretón de motor para el tráfico mercantil tan fuerte que dure dos veces más que el automóvil de paseo en el actual periodo de su desarrollo, no es probable que obtenga la popularidad que esperan los que especulan sobre este ramo de la industria automoviliaria.

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Sin embargo, puesto que la industria fabril de vehículos de motor para el tráfico está hoy muy atrasada, produciendo tal vez solo unos 1.500 vehiculos hasta la fech contra unos 10,000 automoviles al año (1905-1906) en un periodo of tremenda actividad en la fabricación de vehiculos es una de las atractivas posibilidades industriales de la siguiente década, pero una posibilidad que parece aconsejar la prudencia se considere que al fin y al cabo se puede esperar que la producción de esta clase de vehiculos ha de ser mucho menor que la producción anual de vehiculos de recreo.

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INTENTIONAL SECOND EXPOSURE

comercial que lo que indican los guarismos citados arriba.

El punto flaco aludido consiste en el hecho de que la estadística de la industria carruajera no se hace cargo del número de caballos requerido como fuerza de tracción. Si el número y el valor de los caballos que se requieren para los dos ramos del trabajo—placer y negocio—se incluyesen en los datos estadísticos, es posible que el extremo mercantil de la balanza contrapesase el otro extremo, pues la vida de un caballo de trabajo es mucho más corta que la de una bestia usada para el ligero trabajo de paseo, con intervalos de descanso. Otro factor de mayor importancia aún es el hecho presumible de que el número de caballos para cada vehículo no excede probablemente de uno, mientras que probablemente se requieren por lo menos dos para cada vehículo de carga ó de trabajo.

Traduciendo estas condiciones—ligeramente por razones evidentes en las analogías del vehículo de motor—parece inducirnos á creer que el valor, si no el número de los vehículos de motor para negocio, ascenderá en mayor proporción que el valor de los automóviles de recreo, indicado arriba en los guarismos correspondientes de la industria carruajera, á saber, la proporción de unos $32.000.000 contra unos $51.000.000. Sean cuales fueren las concesiones que se hagan en este punto, sin embargo, la predicción de que los vehículos de motor para el tráfico de negocios excederá con mucho en número y valor la producción de automóviles de paseo—y semejante predicción se hace y acepta como acertada comunmente—parece fundarse en una conjetura algo vaga, en vez de los hechos é indicaciones del pasado.—*Marius C. Krarup, in "The Iron Age."*

Premios para Inventores

El Gobierno francés está ofreciendo un premio de 20.000 francos por el descubrimiento de un agente desnaturalizador para el alcohol, que sea superior al usado en la actualidad. El gusto y el olor del agente desnaturalizador deber ser tal que haga imbebible el alcohol al cual se aplique, pero cuyo olor no sea, sin embargo tan fuerte y repugnante que haga inservible el articulo desnaturalizado. Las sustancias solubles que dejen en las mechas y tubos finos depósitos tales como la sal común no son á propósito. La volaticidad del agente desnaturalizador debe ser esencialmente la misma que la del alcohol de modo que no se pueda eliminar por destilación fraccional. No debe contener ningún elemento que ataque los metales, ni ser venenoso como el bicloruro de mercurio. Debe también poderse vender á un precio tan bajo, que no impida el uso del alcohol para fines industriales y domésticos. Debe existir normalmente en el alcohol del comercio, y su presencia en el alcohol se debe poder descubrir con facilidad.

Otro premio de 50.000 ha ofrecido el mismo por un método por medio del cual se pueda usar el alcohol para el alumbrado del mismo modo que hoy se usa el petroleo.

La Lengua Inglesa

El Cónsul General Church Howe, escribiendo desde Amberes, dice:

"El hecho que casi la mitad del tráfico por mar entre Amberes y otros países se hace bajo las banderas británica y americana ha hecho de Amberes un puerto casi inglés. Las autoridades han comprendido esto muy bien y están fomentado el estudio del idioma inglés entre todas las clases de la sociedad. Las escuelas nocturnas gratuitas que dan clases de inglés exclusivamente, organizadas por las autoridades de la ciudad, son atendidas por miles de discípulos, mientras en las escuelas diurnas de todos los grados, tanto públicas como privadas, se dedica especial atención al estudio de la lengua inglesa. La necesidad de adquirir un conocimiento práctico del idioma inglés se reconoce tan generalmente, que la iniciativa particular ha apoyado los esfuerzos de las autoridades educacionistas, y se han organizado clubs compuestos de escribientes, y empleados de los bancos, casas comerciales, etc., llamados "Clubs Educadores del Inglés Manual, y su influjo se está extendiendo con rapidez. Los miembros de esos clubs, en sus estrenuous esfuerzos por adquirir el idioma comercial del mundo están manifestando una poco comun y enérgica determinación.

"Este deseo de popularizar la lengua inglesa no se limita á Bélgica, sino que también se ha extendido á toda la Alemania, donde recientes órdenes del Gobierno requieren que los oficiales y empleados de los ferro-carriles aprendan y hablen el idioma inglés. En Munich y Nuremburgo ha establecido ya el Gobierno alemán escuelas para la enseñanza del idioma inglés. Y no se puede negar el hecho de que en todos los centros mercantiles del Oeste de Europa se está haciendo rápidamente el inglés el idioma comercial internacional.

El Comercio Extranjero en el País

Los americanos á quienes se acusa de indiferencia para con el comercio de exportación, y su número no es muy reducido, jamás han pensado en averigrer porqué no se ven obligados, como los alemanes, á salir de su propio país para sus negocios; pero hay á la verdad por lo menos una razón por la cual pueden considerar el comercio de ultramar com complacencia, si no con indiferencia. Un breve estudio de la estadística de la inmigración de los Estados Unidos aclarará mucho este asunto.

Mientras que los alemanes están ejerciendo toda su energía para inducir á los habitantes de los países extranjeros á que compren sus productos, muchos miles de extranjeros están invadiendo los Estados Unidos cada semana para hacerse aqui listos consumidores de los innumerables productos americanos y creadores y edificadores de numerosas industrias y empresas que á su vez crean mercados para otros productos. Así es que mientras que el alemán tiene que traspasar la frontera de su madre patria para crearle un mercado á su mercancía, si no quiere limitarse á hacer sus ventas á sus mismos compatriotas, se puede decir que en cierto sentido el comercio extranjero está en gran manera gravitando hacia los Estados Unidos de América.

Es bastante cierto que cuando un europeo viene á América como un inmigrame, se hace inmediatamente americano por lo que se refiere á la estadística; pero, por otra parte, es justamente tan cierto que es un hombre cuyo comercio es deseado y puede obtenerse sin salir de los confines de este país, mientras que sólo hubiera podido obtenerlo anteriormente saliendo fuera de su país natal.

Las Exportaciones de Uncle Sam (E. U.)

Los principales mercados de "Uncle Sam" después de los de Inglaterra, Alemania y Francia son Bélgica y los Países Bajos, que son las dos naciones más pesqueñas de Europa. El Reino Unido de la Gran Bretaña es el más fuerte comprador europeo de mercancias americanas. Alemania le sigue, luego Francia, los Países Bajos y Belgica. La exportación de los Estados Unidos para los Países Bajos ascendió en 1905 á $73.000.000, y las importaciones de los Estados Unidos procedentes de los Paises Bajos á $22.000.000. Las exportaciones americanas para Bélgica importaron en 1905 $38.500.000, y el total de nuestras importaciones de ese pais ascendieron prácticamente á un total de $20.000.000, dando por ersultado un movimiento comercial en un año de $160.000.000 con esos dos pequeños paises, cuyas areas combinadas son menores que las del Estado de Ohio, y cuya población no pasa de 12.000,000 de habitantes.

Los Sistemas de Transporte del Mundo

El desarrollo de los medios de transporte que hoy ponen al productor del interior de un continente en comunicación directa con el consumidor del interior de otro continente son el producto de pocos años comparativamente. Al principiar la vida de hombres y mujees que aun viven hoy no tenia el mundo una sola milla de linea ferrea, ni un solo vapor transatlántico. Hoy tiene el mundo 550.000 millas de ferro-carril, y en el oceano buques veleros que conducen 60.000,000 de toneladas de flete y buques de vapor con capacidad para 18.000.000 de toneladas. Al principiar el último siglo había solamente buques de velas con un tonelaje total de 4.000.000, y no existia un solo buque de vapor ni una sola milla de ferro-carril en la tierra. A mediados de dicho siglo pasado ya había en el oceano buques de velas con un tonelaje de 11.000.000 de toneladas, mientras que el tonelaje de los buques de vapor no llegaba todavia á 1.000.000 de toneladas, y los ferro-carriles en tierra no pasaban de 24,000 millas. En 1880 la capacidad de los buques de velas en existencia había llegado á 14.500,000 toneladas en conjunto y la de los vapores á 6.000,000 de toneladas; ya había 225.000 millas de ferro-carril. Desde aquel tiempo la fuerza del vapor reemplazó tan rápidamente la de las velas, que la capacidad de las buques veleros no pasaba de 6.000.000 de toneladas en 1905, mientras que la de los buques de vapor llegaba en conjunto á 18.500.000 toneladas, y los ferro-carriles alcansaban una extensión de 550.000 millas, 217.000 ó dos quintas partes de las cuales se hallan en los Estados Unidos.

Los Estados Unidos están á la cabeza del ferro-carril como en su reciente crecimiento, según los datos estadisticos que acaba de publicar el Departamento de comercio y Trabajos. Del número de millas de ferro-carril de todo el mundo, que en 1904 ascendía á 534,000, 211,074 estaban en los Estados Unidos; 35,323 en la Rusia europea; 32,967 en Alemania; 28,102 en Francia; 26,950 en la India; 24,120 en Austria-Hungria; 22,634 en el Reino Unido de la Gran Bretaña; 19,611 en el Candá; 15,560 millas en Africa; 14,113 en Australia; 11,550 en la Argentina; 10,350 en México; 9,901 en Italia; 9,368 en el Brasil; 7,697 en Suecia; 7,322 en Siberia, Manchuria y otras posesiones asiáticas de Rusia; 4,495 en el Japón, y 1,176 millas en la China. No fué sino hasta el año de 1835 que el número de ferro-carriles de los Estados Unidos en operación llegó á 1,098 millas. En 1850 ya habia aumentado el total á 9,021 millas; en 1860 á 30,626 millas; en 1865, 35,085; durante la década de 1865 á 1875, más que doblaron, habiendo llegado el total en el último año mencionado á 74,096; el total en 1885 fué de 128,320 millas, y el año de 1895, 181,115; en 1900, 194,262, y en 1905 217,328 millas; calculandose su costo total según el Manual de Poor de 1905 en la enorme sumade $11.666.000,000, y el costo de construcción total de los de todo el mundo en $37.000.000.000, incluyendo los de los Estados Unidos.

El tonelaje total neto de los buques de todo el mundo, incluyéndose solamente los que tienen un porte de más de 100 toneladas, se calcula en el "Lloyd's Register" en unos 6.000.000 de toneladas el de los buques de velas, y en 18.500.000 toneladas el de los de vapo. De este total de 24.500.000 toneladas 11.000.000 de toneladas le pertenecen—á Inglaterra, cerca de la mitad; 3.250,000 á los Estados Unidos; 1.330.000 á Noruega; 1.200.000 á Francia, y una 500.000 toneladas cada una á Suecia, España, Japón y los Paises Bajos.

Sorprendente es el contraste entre el rápido crecimiento de los ferro-carriles americanos y el lento desarrollo de la marina mercante de los Estados Unidos. El tonaje de los buques americanos que hacen el comercio extranjero de los Estados Unidos era de 2.348.358 toneladas en 1855; 1.515.598 toneladas en 1875; 822,347 en 1895, y 943.750 toneladas en 1905. El tonelaje de los buques americanos empleados en el comercio de cabotaje de los Estados Unidos era de 2.543.255 en 1855; 3.419.696 en 1875; 3.728,714 toneladas en 1895, y 5.441,568 en 1905. El tonelaje de la marina mercante de los Estados Unidos, incluyendo los ocupados tanto en el comercio extranjero como en el de cabotaje, y los balleneros y los ocupados en la pesca del bacalao y las caballas sólo aumentó de 5.212,001 toneladas en 1855 hasta 6.450.543 toneladas en 1905.

El costo del transporte, tanto por tierra como por mar, ha disminuido. El promedio del precio de llevar una fanega de trigo de Chicago á Nueva York ha discinuido del modo siguiente: por lago y ferro-carril ha bajado de 29 centavos en 1868 á 5 centavos en 1905; por ferro-carril, solamente, de 40 centavos en 1866 á 11 centavos en 1905. Por el mismo artículo y cantidad entre Nueva York y Liverpool, aunque el precio está sujeto á grandes fluctuaciones, ha bajado considerablemente, particularmente en estos últimos años. El transporte de una fanega ("bushel") de trigo de Nueva York á Liverpool era 10 9-16 centavos; en 1875, 8,716 centavos; en 1885, 3 3-6 centavos; en 1895, 2 9-16 centavos; en 1905, 1¼ centavos.

Durante el último año los ferro-carriles de los Estados Unidos condjeron 718.654.951 pasajeros, transportaron unas 1.200.000,000 de toneladas de mercancias contra 351.427,688 pasajeros y y 437.000.000 de toneladas de mercancias en 1885.

La estrecha conexión entre los fáciles medios de transporte y el comercio lo prueba el hecho de que en 1800, cuando no había ferro-carriles ni vapores, el valor del comercio del mundo se evaluaba en $1,500,000,000, mientras que en la actualidad, ayudado for 550,000 millas de ferro-carril y el tonelaje decrito arriba en el oceano, el valor del comercio internacional se calcula aproximadamente en unos $22,500.000.000. Así, bajos los nuevos sistemas de transporte del último siglo, que han desarrollado el interior de vastos continentes y hecho permutables muchos productos qué antes no podian incurrir el costo del transporte, el comercio internacional del mundo vale hoy quince veces tanto como al principio del último siglo, mientras que la población actual de la tierra es sólo dos y media veces tan grande como en aquella fecha, habiendo aumentado el comercio del mundo con respecto á su población $2.50 por cada habitante en 1800 hasta $14.00 por cabeza en la presente época.—*Hay Trade Journal.*

El hacendado americano es el más próspero del mundo. Cuál es la razón? El precio del trabajo manual es muy alto en América, y el trabajo del campo es, no solamente caro, sino muy escaso. El hacendado americano debe su prosperidad á los fabricantes americanos de instrumentos agricolas economizadores de tiempo y trabajo, que le permiten cultivar no sólo mucho mayor area de tierras, sino también hacerles rendir más abundantes cosechas y más valiosas, á causa de la superior calidad de sus frutos.

La Emigración de la Europa

El asunto de la inmigración procedente de Europa no ha tenido nunca tanta importancia para los Estados Unidos como en la actualidad. Los campos, las tiendas y las fábricas de nuestro país estan exigiendo más trabajadores. De qué países han de venir es la cuestión que mas nos interesa. La corriente de la emigracion de la Europa-septentrional ha bajado, y los hijos de Italia están viniendo á nuestra ayude en pacificas legiones. Pero esta inmigracion tiene que disminuir tambien, pues Italia se va despoblando. Otra nación del Mediterraneo, España, es el único país que aun no ha dado salida á una corriente de emigración á nuestras playas. Que á España no le ha atacado todavia la fiebre de la emigración lo prueba el hecho de que menos de dos por cada 1,000 de sus habitantes dejaron su país para otras regiones durante el año de 1904, mientras que siete por cada 1,000 habitantes de Irlanda abandonaron su tierra natal el mismo año, y un número mucho mayor de italianos proporcionalmente dejaron su peninsula. De consiguiente el siguiente informe del Consul Harmony, de la Coruña, será de considerable interes para los Americanos.

"En España las provincias maritimas son las que más pábulo han dado a la emigracion. Sin embargo, la población de la costa del mar ha aumentado, mientras que la población de las provincias interiores, que contribuye con poquísimos emigrantes, ha disminuido comparativamente y permanece estacionaria. El año de 1904 98,394 salieron de España por mar, y 71,254 entraron en el país. Estos totales incluyen el importante movimiento entre España y África, Francia y Gibraltar. El exceso de la emigración sobre la inmigración ocurre en las provincias de España más densamente pobladas, cuya población continúa aumentado. Con respecto á la comparación de la emigración de España con la de otras naciones europeas, los datos estadisticos publicados por el Instituto Geográfico y Estadistico de España le dan á Irlanda 7.37 emigrados por cada 1,000 habitantes, y á España 1.82 por cada 1,000.

No se puede obtener guarismos exactos sobre el total de las cantidades de dinero enviadas á España desde América por sus emigrados; pero se asegura que una casa banquera de la Coruña pagó en 1904 $2,200,000 por medio de giros recibidos de América, enteramente aparte de los giros para cubrir operaciones comerciales. El mismo año el Banco del Río de la Plata pagó giros españoles por valor de unos $8,000,000. De consiguiente, no es exageración inferir que el año de 1904 unos $16,000,000 fueron remitidos á España ó enviados de alli por los españoles que emigraron al Nuevo Mundo.

El Vice-Cónsul-General Westacott, de Londres, presenta un informe sobre la emigración del Reino Unido de la Gran Bretaña durante el año próximo pasado, del cual tomamos lo que signe:

El número total de los emigrados de la Gran Bretaña é Irlanda llegó en 1905 á 459,917, que acusa un aumento de 6,040 sobre la emigración de 1904. Hubo una disminución de 9,197 de británicos e irlandeses, pero un aumento de 15,237 extranjeros. La emigración británica é irlandesa á las colonias británicas muestra que 82,457 emigrados fueron al Canadá, un aumento de 17 por ciento sobre el año anterior; 15,181 á Australia; 26,283 al África Meridional británica; 4,716 á la India, y 4,458 á otras colonias. La emigración de británicos é irlandeses á los Estados Unidos fué el año próximo pasado de 122,389, una disminución de 17 por ciento, y 6,754 á otros paises extranjeros. La emigración de extranjeros al Reino Unido de la Gran Bretaña fué 43 por ciento del numero total de 459,917. De estos 25,688 vinieron a la America del Norte británica y 10,588 á las colonias británicas; 154,325 á los Estados Unidos (un aumento de 6 por ciento sobre el año precedente), y 7,078 á otros países extranjeros, además, 196,529 llegaron al Reino Unido en 1905 procedentes de paises continentales, siendo un aumento de 1,543 sobre 1904. Más de la mitad de esos extranjero iban en camino para otros países, 108,347 de los cuales continuaron su viaje. Esa inmigración de la Europa Continental ha llegado á ser un serio problema para la Gran Bretaña, que ha dado por resultado la ley de exclusión parcial (publicada en los Informes Consulares y Comerciales diarios del 10 de Febrero). Sin embargo, la inundación de emigrantes no fué tan grande en 1905 como el año anterior, pero 74,409 se quedaron en el país, contra 82,845 en 1904.

Las facilidades para el transporte modernas aniquilan las distancias y nos acercan los mercados extranjeros más que algunos puntos del mismo Estado hace pocos años.

Máquina que Profetiza

Una máquina que profetiza está en uso por el "Coast Survey" en Washington, D. C. Esa máquina puede predecir y en efecto predice el tiempo de la pleamar y la bajamar de cualquier lugar dado, y hace esas predicciones para todo el año anticipadamente. Su acción no se limita á un año, pero este es el limite del trabajo que se requiere de ella. Es compacta y delicada hasta un grado difícil de concebir. Para hacer esas predicciones de las mareas, que publica el "Survey" todos los años en forma de un libro de tablas, se monta primero la maquinita, y luego se opera á mano. Como se puede suponer, el montaje de la máquina es el punto en que se combinan los efectos de un mecanismo perfectamente exacto y del entendimiento humano. Al hacer esas predicciones de las mareas hay que determinar diez y nueve factores. Cada factor altera todos los demás. De aqui que se haya construido la máquina de modo que la alteración de un factor produzca su efecto en los otros factores. Como se hace esto se comprende hasta cierto punto notando que lleva diez y nueve cuadrantes con punteros. Cada puntero está sobre una polea montada excentricamente en su eje, y sobre esa polea pasa una cadenita que va de una á otra polea. Naturalmente si se altera la excentricidad de una polea, se produce un efecto proporcional en todas las demás. La máquina fué inventada por el Profesor William Ferrell, quien se la presentó al Gobierno sin cobrar nada por su invención. Costó originalmente sólo $3,500, y hace el trabajo de cuarenta computistas expertos.

Los fabricantes americanos da instrumentos agricolas se ven frecuentemente obligados á ensanchar sus plantas fabriles erigiendo nuevos edificios. La demanda de instrumentos de labranza es tán grande, tanto en el país como en el extranjero, que la capacidad de sus fábricas es cada dia más inadecuada para dar abasto á sus trabajos. Muchos de nuestros más grandes establecimientos fabriles han estado durante los últimos pocos meses trabajando noche y dia para suplir la demanda. Tantos nuevos edificios se han añadido durante los últimos años á nuestras innumerables fábricas, que se pueden considerar como enteramente nuevas y de construcción moderna bajo todos conceptos. Han sido provistas de la mejor y más perfeccionada maquinaria moderna que hacen el trabajo de muchos expertos operarios mecánicos.

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Im Firmenverzeichnis für Käufer das im ersten Theil dieses Blattes wiedergegeben ist, werden unsere geehrten Leser die betreffenden Waarenartikel in deutscher Sprache wiedergegeben finden. Es geschieht dies um ihnen die Möglichkeit zu geben, mit unseren Inserenten leichter korrespondiren zu können.

Die moderne Transportations-Leichtigkeit verringert jede Streckenausdehnung und bringt die auswärtigen Märkte enger zusammen, ja verbindet uns mit anderen Ländern schneller, besser, wie es vor wenigen Jahren der Fall war.

Die geschätzten Leser des *"Export Implement Age"* werden darauf hingewiesen, dass sie mit den Inserenten dieses Blattes in allen beliebigen Sprachen korrespondiren können. Die Inserenten dieses Blattes sind bereit Exporthandel irgend welcher Art zu unternehmen und laden jedwede Korrespondenz irgen einer Sprache auf dem ganzen Erdballe ein.

Emigration von Europa

Nie zuvor war die Emigration von grösserer Wichtigkeit für die Vereinigten Staaten als gerade jetzt. Die Gefielde, die Fabriken und Werkstätten unseres Landes brauchen mehr und immer mehr Arbeiter. Von welcher Seite her sollen dieselben beschafft werden, ist die interessante Frage. Die Emigrationsfluth aus dem nördlichen Europa ist zurückgegangen und die Söhne Italiens sind uns in friedfertigen Armeen zu Hülfe gekommen. Doch seit nun Italien selbst ausgeleert geworden ist, wird diese Quelle auch bald im Abnehmen begriffen sein. Ein anderes mittelländisches Land ist Spanien, das andere europäische Land das die Emigrationsfluth nach unseren Gestaden soweit noch nicht angefangen hat. Dass der Spanier noch nicht vom Emigrationsfieber ergriffen und zwar ernstlich ergriffen ist, kann durch die Thatsache erläutert werden, dass von je 1000 Spaniern kaum 2 Proz. nach anderen Ländern ausgewandert sind, wohingegen imselben Jahre mehr als 7 Irländer ihr Heimathland aus jedem Tausend verlassen und eine weit grössere Zahl von Italienern ihre Halbinsel verlassen. Aus obigem Grunde dürfte denn der nachfolgende Bericht des Konsuls Harmony, von Koruna, sich für Amerikaner von besonderem Interesse erweisen:

In Spanien gelten die seeischen Provinzen als die ergiebigsten Quellen der Emigration. Doch die seeküstliche Bevölkerung hat sich vergrössert, wohingegen die der inländischen Provinzen, die doch nur eine geringe Emigrationsquelle bieten, im Verhältnis dieselbe bleibt. Im Jahre 1904 verliessen 98.394 Emigranten Spanien per See und 71.254 schifften sich ein. Diese Totalsummen schliessen die wichtigen Importations bewegungen zwischen Spanien und Afrika, Frankreich und Gibraltar mit ein. Das Uebermass der Auswanderung über die Einwanderung in Spanien rührt von den dichtesten Bevölkerungsprovinzenher, die an Einwohnerschaft im Zunehmen stets begriffen sind. Hinsichtlich der Vergleichung der Auswanderung von diesem Lande mit der Auswanderung anderer europäischen Nationen, liefern die erhaltenen Statistike der Geographischen und Statischen Institute Spaniens den Bericht, dass Irland 7.37 Emigranten für je 1,000 Einwohner abwrift, wohingegen Spanien blos 1.82 per 1,000 liefert.

Es können zwar keine genauen Ziffer angegeben werden, bis zu welcher Höhe sich die Summen belaufen, die von in Amerika eingewanderten Personen nach Spanien wieder zurückgeschickt, resp. wiedergebracht wurden. Immerhin ist est bekannt gegeben worden, dass eine einzelne Bankfirma in Korunna in 1904 allein 2.200.000 Dollarwerth Anweisungen, die aus Amerika kamen, ausbezahlt hatte, ganz abgesehen von anderen kommerziellen Transaktionen. Die Bank in Rio de la Plata bezahlte imselben Jahre Anweisungen aus in Betrage von über acht Millionen Dollar. Man greift deshalb wohl nicht zu hoch, wenn man annimmt, dass etwa sechzehn Millionen Dollar in 1904 von Spaniern, die in die neue Welt eingewandert sind, in dieses Land gebracht, resp. geschickt wurden.

Der General Vice-Konsul von London, Herr Westacott lässt in einem von dem Vereinigten Königreiche für letztes Jahr bekannt gewordenen Bericht das Folgende verlauten:

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La Emigración de la Europa

El asunto de la inmigracion procedente de Europa no ha tenido nunca tanta importancia para los Estados Unidos como en la actualidad. Los campos, las tiendas y las fabricas de nuestro pais estan exigiendo mas trabajadores. De que paises han de venir es la cuestion que mas nos interesa. La corriente de la emigracion de la Europa septentrional ha bajado, y los hijos de Italia estan viniendo a nuestra ayuda en pacificas legiones. Pero esta inmigracion tiene que disminuir tambien, pues Italia se va despoblando. Otra nacion del Mediterraneo, España, es el único país que aun no ha dado salida a una corriente de emigracion a nuestras playas. Que a España no le ha atacado todavia la fiebre de la emigracion lo prueba el hecho de que menos de dos por cada 1,000 de sus habitantes dejaron su pais para otras regiones durante el año de 1904, mientras que siete por cada 1,000 habitantes de Irlanda abandonaron su tierra natal el mismo año, y un numero mucho mayor de italianos proporcionalmente dejaron su peninsula. De consiguiente el siguiente informe del Consul Harmony, de la Coruña, sera de considerable interes para los Americanos.

"En España las provincias maritimas son las que mas pabulo han dado a la emigracion. Sin embargo, la poblacion de la costa del mar ha aumentado, mientras que la poblacion de las provincias interiores, que contribuye con poquisimos emigrantes, ha disminuido comparativamente y permanece estacionaria. El año de 1904 98,394 salieron de España por mar, y 71,254 entraron en el pais. Estos totales incluyen el importante movimiento entre España y Africa, Francia y Gibraltar. El exceso de la emigracion sobre la inmigracion ocurre en las provincias de España mas densamente pobladas, cuya poblacion continúa aumentado. Con respecto a la comparacion de la emigracion de España con la de otras naciones europeas, los datos estadisticos publicados por el Instituto Geografico y Estadistico de España le dan a Irlanda 7.37 emigrados por cada 1,000 habitantes, y a España 1.82 por cada 1,000.

No se puede obtener guarismos exactos sobre el total de las cantidades de dinero enviadas á España desde America por sus emigrados; pero se asegura que una casa banquera de la Coruña pago en 1904 $2,200,000 por medio de giros recibidos de América, enteramente aparte de los giros para cubrir operaciones comerciales. El mismo año el Banco del Rio de la Plata pagó giros españoles por valor de unos $8,000,000. De consiguiente, no es exageracion inferir que el año de 1904 unos $16,000,000 fueron remitidos a España o enviados de alli por los españoles que emigraron al Nuevo Mundo.

El Vice-Consul-General Westacott, de Londres, presenta un informe sobre la emigracion del Reino Unido de la Gran Bretaña durante el año proximo pasado, del cual tomamos lo que sigue:

El numero total de los emigrados de la Gran Bretaña e Irlanda llego en 1905 á 459,917, que acusa un aumento de 6,040 sobre la emigracion de 1904. Hubo una disminucion de 9,107 de britanicos e irlandeses, pero un aumento de 15,237 extranjeros. La emigracion británica e irlandesa á las colonias británicas muestra que 82,457 emigrados fueron al Canadá, un aumento de 17 por ciento sobre el año anterior; 15,181 a Australia; 26,283 al Africa Meridional britanica; 4,716 a la India, y 4,458 á otras colonias. La emigración de britanicos é irlandeses a los Estados Unidos fue el año proximo pasado de 122,389, una disminucion de 17 por ciento, y 6,754 á otros paises extranjeros. La emigracion de extranjeros al Reino Unido de la Gran Bretaña fue 43 por ciento del numero total de 459,917. De estos 25,688 vinieron a la America del Norte britanica y 10,588 a las colonias británicas; 154,325 á los Estados Unidos (un aumento de 6 por ciento sobre el año precedente), y 7,078 á otros paises extranjeros, ademas, 196,529 llegaron al Reino Unido en 1905 procedentes de paises continentales, siendo un aumento de 1,543 sobre 1904. Más de la mitad de esos extranjero iban en camino para otros paises, 108,347 de los cuales continuaron su viaje. Esa inmigracion de la Europa Continental ha llegado á ser un serio problema para la Gran Bretaña, que ha dado por resultado la ley de exclusión parcial (publicada en los Informes Consulares y Comerciales diarios del 10 de Febrero). Sin embargo, la inundacion de emigrantes no fue tan grande en 1905 como el año anterior, pero 74,409 se quedaron en el pais, contra 82,845 en 1904.

Las facilidades para el transporte modernas aniquilan las distancias y nos acercan los mercados extranjeros más que algunos puntos del mismo Estado hace pocos años.

Máquina que Profetiza

Una máquina que profetiza está en uso por el "Coast Survey" en Washington, D. C. Esa máquina puede predecir y en efecto predice el tiempo de la pleamar y la bajamar de cualquier lugar dado, y hace esas predicciones para todo el año anticipadamente. Su acción no se limita á un año, pero este es el limite del trabajo que se requiere de ella. Es compacta y delicada hasta un grado dificil de concebir. Para hacer esas predicciones de las mareas, que publica el "Survey" todos los años en forma de un libro de tablas, se monta primero la maquinita, y luego se opera á mano. Como se puede suponer, el montaje de la máquina es el punto en que se combinan los efectos de un mecanismo perfectamente exacto y del entendimiento humano. Al hacer esas predicciones de las mareas hay que determinar diez y nueve factores. Cada factor altera todos los demás. De aqui que se haya construido la máquina de modo que la alteración de un factor produzca su efecto en los otros factores. Como se hace esto se comprende hasta cierto punto notando que lleva diez y nueve cuadrantes con punteros. Cada puntero está sobre una polea montada excentricamente en su eje, y sobre esa polea pasa una cadenita que va de una á otra polea. Naturalmente si se altera la excentricidad de una polea, se produce un efecto proporcional en todas las demás. La máquina fué inventada por el Profesor William Ferrell, quien se la presentó al Gobierno sin cobrar nada por su invención. Costó originalmente sólo $3,500, y hace el trabajo de cuarenta computistas expertos.

Los fabricantes americanos da instrumentos agrícolas se ven frecuentemente obligados á ensanchar sus plantas fabriles erigiendo nuevos edificios. La demanda de instrumentos de labranza es tán grande, tanto en el pais como en el extranjero, que la capacidad de sus fábricas es cada dia más inadecuada para dar abasto á sus trabajos. Muchos de nuestros más grandes establecimientos fabriles han estado durante los últimos pocos meses trabajando noche y dia para suplir la demanda. Tantos nuevos edificios se han añadido durante los últimos años a nuestras innumerables fábricas, que se pueden considerar como enteramente nuevas y de construcción moderna bajo todos conceptos. Han sido provistas de la mejor y más perfeccionada maquinaria moderna que hacen el trabajo de muchos expertos operarios mecánicos.

EXPORT IMPLEMENT AGE

NUR FÜR'S AUSLAND BESTIMMT.

Ein unabhängiges Blatt, das ausschliesslich dem Exporthandel in landwirtschaftlichen Maschinen, Pumpen, Windmotoren und sämmtlichen Artikeln der Land- und Milchwirtschaft gewidmet ist.

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Von derselben Verlagsanstalt werden ferner herausgegeben: "The Implement Age" "The American Fertilizer," "The Carriage Monthly" und "The Vehicle Dealer."

Band XIV. Philadelphia, Vereinigte Staaten, Juni, 1906. No. 3

Im Firmenverzeichnis für Käufer das im ersten Theil dieses Blattes wiedergegeben ist, werden unsere geehrten Leser die betreffenden Waarenartikel in deutscher Sprache wiedergegeben finden. Es geschieht dies um ihnen die Möglichkeit zu geben, mit unseren Inserenten leichter korrespondiren zu können.

Die moderne Transportations-Leichtigkeit verringert jede Streckenausdehnung und bringt die auswärtigen Märkte enger zusammen, ja verbindet uns mit anderen Ländern schneller, besser, wie es vor wenigen Jahren der Fall war.

Die geschätzten Leser des *"Export Implement Age"* werden darauf hingewiesen, dass sie mit den Inserenten dieses Blattes in allen beliebigen Sprachen korrespondiren können. Die Inserenten dieses Blattes sind bereit Exporthandel irgend welcher Art zu unternehmen und laden jedwede Korrespondenz irgen einer Sprache auf dem ganzen Erdballe ein.

Emigration von Europa

Nie zuvor war die Emigration von grösserer Wichtigkeit für die Vereinigten Staaten als gerade jetzt. Die Gefielde, die Fabriken und Werkstätten unseres Landes brauchen mehr und immer mehr Arbeiter. Von welcher Seite her sollen dieselben beschafft werden, ist die interessante Frage. Die Emigrationsfluth aus dem nördlichen Europa ist zurückgegangen und die Söhne Italiens sind uns in friedfertigen Armeen zu Hülfe gekommen. Doch seit nun Italien selbst ausgeleert geworden ist, wird diese Quelle auch bald im Abnehmen begriffen sein. Ein anderes mittelländisches Land ist Spanien, das andere europäische Land das die Emigrationsfluth nach unseren Gestaden soweit noch nicht angefangen hat. Dass der Spanier noch nicht vom Emigrationsfieber ergriffen und zwar ernstlich ergriffen ist, kann durch die Thatsache erläutert werden, dass von je 1000 Spaniern kaum 2 Proz. nach anderen Ländern ausgewandert sind, wohingegen imselben Jahre mehr als 7 Irländer ihr Heimathland aus jedem Tausend verlassen und eine weit grössere Zahl von Italienern ihre Halbinsel verlassen. Aus obigem Grunde dürfte denn der nachfolgende Bericht des Konsuls Harmony, von Koruna, sich für Amerikaner von besonderem Interesse erweisen:

In Spanien gelten die seeischen Provinzen als die ergiebigsten Quellen der Emigration. Doch die seeküstliche Bevölkerung hat sich vergrössert, wohingegen die der inländischen Provinzen, die doch nur eine geringe Emigrationsquelle bieten, im Verhältnis dieselbe bleibt. Im Jahre 1904 verliessen 98.394 Emigranten Spanien per See und 71.254 schifften sich ein. Diese Totalsummen schliessen die wichtigen Importations bewegungen zwischen Spanien und Afrika, Frankreich und Gibraltar mit ein. Das Uebermass der Auswanderung über die Einwanderung in Spanien rührt von den dichtesten Bevölkerungsprovinzenher, die an Einwohnerschaft im Zunehmen stets begriffen sind. Hinsichtlich der Vergleichung der Auswanderung von diesem Lande mit der Auswanderung anderer europäischen Nationen, liefern die erhaltenen Statistike der Geographischen und Statischen Institute Spaniens den Bericht, dass Irland 7.37 Emigranten für je 1,000 Einwohner abwrift, wohingegen Spanien blos 1.82 per 1,000 liefert.

Es können zwar keine genauen Ziffer angegeben werden, bis zu welcher Höhe sich die Summen belaufen, die von in Amerika eingewanderten Personen nach Spanien wieder zurückgeschickt, resp. wiedergebracht wurden. Immerhin ist est bekannt gegeben worden, dass eine einzelne Bankfirma in Korunna in 1904 allein 2.200.000 Dollarwerth Anweisungen, die aus Amerika kamen, ausbezahlt hatte, ganz abgesehen von anderen kommerziellen Transaktionen. Die Bank in Rio de la Plata bezahlte imselben Jahre Anweisungen aus in Betrage von über acht Millionen Dollar. Man greift deshalb wohl nicht zu hoch, wenn man annimmt, dass etwa sechzehn Millionen Dollar in 1904 von Spaniern, die in die neue Welt eingewandert sind, in dieses Land gebracht, resp. geschickt wurden.

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INTENTIONAL SECOND EXPOSURE

Zwei amerikanische Speziailtäten

Es gereicht uns zum Vergnügen unseren geschätzen Lesern Illustrationen zweier amerikanischer Spezialitäten vorführen zu können, die sich auf dem Weltmarkte so vortrefflich eingeführt haben. Wir beziehen uns hier auf den "Black Hawk" Maisenthülser und die "Black Hawk" Mahlmühle. Beide sind zwar nicht allzugross, doch überaus leistungsfähig. Das Sparen das durch den Gebrauch derselben jährlich erzielt wird erstreckt sich auf sehr enorme Summen.

Der "Black Hawk" Maisenthülser ist in der That eine geistreiche Erfindung; jede Einzeiheit seiner Konstruktion ist daraufhin berechnet ihn im Gebrauch so vollkommen als möglich zu machen. Sechs bis vierzehn Scheffel. Aehrenmais können damit per Stunde verarbeitet werden, gross genug also, für den Durchschnitts-Landwirthen. Ein ganz besonderer Vorzug derselben ist die ausserordentlich leichte Hantirbarkeit—eine Frau, sogar ein Kind können sie vortheilhaft behandeln. Das Achrenkorn wird in die Maschine gethan, welche jedes einzelne Körnchen sorgfältig entfernt: der Kolben wird dann herausgeworfen und nichts als das enthülste Korn bleibt in den Kasten oder in der Tonne zurück.

Die "Black Hawk" Mahlmühle ist für Handbetrieb konstruirt und sowohl fürs Haus wie auch für den Feldgebrauch bestimmt. Korn, Weizen, Roggen, Reis, Kaffee, Erbsen, Bohnen, Salz und dergl. können mit dieser Maschine, je nach Belieben, grob oder fein vermahlen werden: sie liefert die bestvermahlte Sorte Weizen, Graham- und Roggenmehl für den Tischgebrauch. Ihre Bauart ist mit grösster Sorgfalt ausgeführt, alle Theile sind wechselbar und können leicht ohne jedwedes Werkzeug in den Stand gesetzt werden.

Herrn Patch' ganze Fabrik ist ausschliesslich mit dem Bau dieser Enthülser und Mühlen thätig. Da er keinerlei sonstige Maschinen baut, darf mit Sicherheit vorausgesetzt werden, dass seine ganze Aufmerksamkeit nur der sorgfältigsten Konstruktion seiner Maschine—wozu die besten Materialien angewendet werden—zugewandt ist. Ganz besondere Sorgfalt wird auf den Exporthandel gelegt. Woimmer Waaren auch versandt werden und welche Behandlung sie auch erhalten mögen, sie erreichen ihren Bestimmungsort stets in bester Beschaffenheit. Ausführliche Einzelheiten und Mittheilung können Interessenten dieser Maschine frei erhalten, wenn sie ihre Briefe adressiren an Herrn A. H. Patch, Clarksville, Tenn., U. S. A.

Die "Steinbrecher" Maisgrützmühle mit kontinuirlicher Speisevorrichtung

Die "Steinbrecher" Maisgrützmühle nimmt das Samenkorn aus der Aehre heraus und liefert es für den Markt bereit ohne jegliche Beihülfe von Reinigungs-, Absonderungs- und Polirmaschinen irgend welcher Art.

Das Speisen sowie auch das Auswerfen ist kontinuirlich, was zur Folge hat, dass die Maschine immer gleichmässig in ihrem Gange bleibt. Das ungleichmässige Gehen das automatische Mühlen so unbeliebt macht, ist hier vollständig ausgeschlossen. Woimmer das Laden der Maisgrützmühlen automatisch geschieht, und so diese Ladung regelmässig vor sich geht, bleibt die Bewegung der übrigen Maschinerien, die mit ihr zusammen betrieben werden, eine gleichmässige. Wenn die Ladung ausgeworfen wird läuft das ganze Maschinenwesen bei anderen Typen schnell weiter, was zur Folge hat, dass die Arbeitsleistung unbefriedigend ist. Ein anderer Grund ist auch darin zu finden dass die meisten Maisgrützmaschinen zu viel Triebwerk besitzen und so grosse Reibung hervorrufen, dass die zu deren Betriebe erforderliche Kraft fast viermal so gross ist, wie es bei dieser Maschine unserer Konstruktion gebraucht ist.

Die Fabrikanten, die Herren Sprout, Waldron & Co., Muncy, Pa., U. S. A., stellen ein komplettes Assortiment moderner Mahlmaschinen her und dürfte Jeder, der für derartige Maschinen Interesse beweist finden, dass der von der Firma herausgegebene Katalog ein werthvolles Buch nützlicher Information über moderne und verbesserte Methoden ist; und dass darin Mittheilung über eine eventuelle Maschinenklasse gegeben wird, deren Verbesserungen tausende Dollar jährlich einbringen. Wir rathen deshalb unseren geschätzten Lesern sich diesen Katalog, der frei auf Verlangen versandt wird, verschreiben zu wollen.

In der Luft unternommenes Scheibenschiessen

Während der jüngst vom französischen Kriegsminister, Herrn Berteaux, unternommenen Experimente in dem Debaudy kontrollirbaren Luftballon, sollen Lufttorpedos mit herabgeschossen haben. Es erwies sich, dass das Luftschiff 35 bis 40 Kilometer per Stunde gehen und wenigstens sechs Stunden lang in der Luft schweben konnte. Es stieg leicht bis zu einer Höhe von 1,500 Metern hinauf und ermöglichte den Insassen Batterie- und Trupeiner Höhe von 200 bis 500 Meten konnten Eindringen der Kugel wieder schloss. Bis zu penaufnahmen zu machen, welche im Falle eines Krieges oder Angriffes auf den betreffenden Platz von ausserordentlichem Nutzen sein dass Kugeln sie entweder überhaupt nicht durchdringen konnten oder nur so ganz geringe Löcher zurückliessen, dass der Gasausfluss weniger als bemerkbar schien und die Oeffnung sich nicht selten sofort nach dem dürfte. Der Ballonmotor hatten 40 Pferdekräfte und der Umschlag oder sogen. Gasbeutel bestand aus zwei Dicken Seide mit einem Anstrich flüssigen Gummi, der den Gasverlust auf nur 2 Prozent verringerte. Es erwies sich das diese Hülle eine Elastizitätsqualität besass, äusserster Genauigkeit von einer 400 Fuss hohen Strecke auf Scheiben 25 Quadrameter Artilleriegeschütze mit Motorwagen den Ballon nicht treffen und es wurde sogar noch behauptet, dass dieser Ballon allen an ihn gestellten Anforderungen trefflich nachgekommen se und für Kriegszwecke eine neue und zwar sehr gafährliche Errungenschaft bilde. .

Amerikanische Pflüge und Geräthe

Die Firma Bucher & Gibbs, Pflugfabrikanten der sogen. "Imperial" Sorte landwirthschaftlicher Geräthe, hat eine Annonce im innern Vorderdeckel in der heutigen Ausgabe dieses Blattes, die von besonderem Interesse für die geschätzten auswärtigen Leser dieser Zeitschrift sein dürfte. Die Gesellschaft erfreut sich eines hervorragenden Rufes im Exporthandel und sollten Interessenten es ja nicht unserlassen sich mit deren Export-Bureau, B 21 Produce Exchange, New York, U. S. A., sofort in Verbindung zu setzen. Sie ladet Korrespondenz in jeder Sprache ein und erbietet sich jedwede Information, die in dieser Linie gewünscht werden sollte, franko zu ertheilen.

Die vom General-Konsul Guenther, in Frankfurt, angeregten Statistike über das deutsche Postamt und Briefausfuhr deuten an, dass 10.549.100 Briefschaften in 1904 aus den Vereinigten Staaten nach Deutschland geschickt wurden, wohingegen 11.722.000 Briefe aus Deutschland in die Vereinigten Staaten während desselben Zeitraumes eingegangen sind.

Die Verwendung des Pferdes in der Industrie

Wohl kein einziges Thier des Thierreiches hat in so reichen Masse für die Befreiung des Menschen in seiner Arbeitsquälerei beigetragen als das Pferd. Des Menschen erfinderischer Geist erfand und entwickelte die rauhen Erstlingsgeräte der Landwirthschaft, die, nach dem bestehenden Gesetze, dass nur der Tüchtigste sich überlebt, seit dem Beginne der Menschengeschichte zu den Erstlingsarbeiten der Bodenkultur gehörte.

Die Landwirthschaft durch Handarbeit betrieben konnte in nur sehr beschränkten Strecken zur Ausführung gebracht werden. Dieselbe war anfangs derart gering, dass ein Ueberbleibsal an Produkten welcher in früheren Zeiten in den Erstlingsperioden angesammelt wurde, sich als ungenügend erwies um eine Stadtbevölkerung am Leben zu erhalten. Doch sobald der junge Erstlingsboden aufgeackert und der Same darin hineingepflanz wurde, fing der Konflikt mit dem werthlosen Unkraut, resp. den Nahrungspflanzen, so ungemein wichtig für die Lebensunterhaltung Aller, an. Die nöthige Arbeit zur Bebauung kleiner Strecken war ungemein gross. welch Wunder denn dass überall die Männer bald gezwungen wurden Bebauer ihres eigenen Landes zu werden.

Der Mensch ist sowohl für Fleischernährung event. für Pflanzennahrung geschaffen und sein Menu für Fleisch- und Feldprodukte. Vermittelst der Erstlingsgeräthe konnten nur geringe Strecke der Kultur der Landwirthschaft durch Handbetrieb in nützlicher Weise zugängig gemacht werden. Seit einem Zeitalter bereits wurden Cerealien z. B. mit der Sichel eingeheimst; die Aehrenlesemaschine folgte der Erntemaschine, welche die auf dem Boden zurückgelassenen Getreidekörner auflas.

Auf jedem Gebiete der praktischen Landkultur ist das Pferd Pioneer der erfolgreichen Landwirthschaft geworden. An einem Hügelpflug angespannt, können zwei Ziehpferde ebensoviel Boden aufpulverisiren wie es zwanzig Männer thun können. Mit einer Egge, mit einem Samenpflanzer und einer Erntemaschine wird und kann der einzelne Mann im Vergleich mehr leisten, als es in der Landwirthschaft der Vergangenheit der Fall war. Wenn es am Mäher, am Rechen oder am Selbstverlader angespannt wird liefert die Heurnte einen weit grösseren Ersatz und nimmt bedeutendere Dimensionen an wie es die Erfolge der Handarbeit kaum erträumen können. Man nehme das Pferd von der Agrikultur weg und die ganze Civilisation geht in die altmodische Zeit der Vergangenheit zurück.

Doch nicht allein in der Agrikultur, auch in jedem anderen Zweige der ix-beliebigen Industrie, die Oekonomie und Kraftanwendung braucht, ist das Pferd heute unentbehrlich. Nur das Pferd hat eine grosse Metropolis zur Möglichkeit gemacht, indem es ein so bedeutender Erzeugungsfaktor in der Landwirthschaft geworden ist, welches die Waaren und sonstige Fracht von Stadt und Land befördert. In den Gruben, in der Landwirthschaft, in den industriellen Unternehmungen und in der Waarentransportation ist bis jetzt noch kein Ersatz für das Pferd gefunden worden und scheint seine Nützlichkeit eher im Wachsen als im Abnehmen begriffen zu sein, wenn der Fortschritt moderner Civilisation in Betracht gezogen wird.—*Drovers' Journal.*

Das Transportations System der Welt

Die moderne Systems-Entwickelung für Transportation, vermittelst welcher Landwirthe im Innern eines Kontinentes direkt mit den Landwirthen eines anderen Kontinentes verbunden werden können, ist das Produkt von verhältnismässig wenigen Jahren. Noch im Lebensalter heute rüstiger Männer und Frauen gehört die Erinnerung wo keine einzige Meile Eisenbahn existirte und kein einziges Dampfschiff den Ocean kreuzte. Heute besitzt die Welt ein Eisenbahnnetz von 550.000 Meilen nebst einer Tonage von sechs Millionen segelführender Kraft, resp. achtzehn Millionen Dampfkraft. Zu Anfang des letzten Jahrhunderts betrug die Kraft der Segelführenden Boote etwa vier Millionen Tons. Dampfkraft existirte zu jener Zeit noch nicht; noch existirte zu jener Periode eine Eisenbahn. Um die Mitte des Jahrhunderts aber vergrösserten sich die Segelkraft Fahrzeuge des Oceans bis auf etwa elf Millionen Tons, die Fahrzeuge mit Dampfkraft beliefen sich auf kaum 1 Million, während die Eisenbahnen kaum 24.000 Meilen betrugen. Um 1880 erreichte die segelnde Macht des Oceans 14.500.000 Tons, die Dampfkraft ungefähr sechs Millionen Tons und die Landeseisenbahnen eine Ausdehnung von etwa 225.000 Meilen. Seit jener Periode machte der Dampfbetrieb des Oceans so enorme Fortschritte und überflugelte die Segelfahrzeuge derart, dass in 1905 die Totalsegelausrüstung des Oceans auf etwa sechs Millionen Tons herabgesunken war, wohingegen die Dampfmaschinen-Fahrzeuge eine Tonnage von 18.500.000 erreichten. Eisenbahnen gelangten eine Gesammt-Längenausdehnung von 550.000 Meilen, wovon 217.000 Meilen, oder Zweifünftel des Ganzen den Vereinigten Staaten zufallen.

Die Vereinigten Staaten leiten die Welt, sowohl in der augenblicklichen Meilenausdehnung wie auch im Wuchs ihrer Eisenbahnen, wie jüngst Statistike des Handels- und Arbeits-Ministeriums erwiesen. Von der Meilenausdehnung der ganzen Eisenbahnwelt, welche sich in 1904 auf ca. 534.000 Meilen belief, gehörten 211.074 Meilen den Vereinigten Staaten, 35.323 Meilen dem europäischen Russland, 32.967 Meilen Frankreich, 20.950 Meilen Indien, 28.102 Meilen Frankreich, 24.120 Meilen Oesterreich-Ungarn, 22.634 Meilen dem Vereinigten Königreich, 19.611 Meilen an Kanada, 15.560 Meilen Afrika, 14.113 Meilen Australien, 11.559 Meilen Argeminien, 10.356 Meilen Mexiko, 9.901 Meilen Italien, 9.368 Meilen Brasilien, 7.097 Meilen Schweden, 7.322 Meilen Sibirien, Mantschurien und anderen asiatischen Besitzungen Russlands, 4.495 Meilen Japan und 1.176 Meilen an China. Es geschah nicht bis im Jahre 1835 dass die in Operation befindlichen Eisenbahnen die Tausendmeilen-Ziffer erreichten, denn es waren just 1098 Meilen die in genanntem Jahre fertighergestellt wurden. Um 1860 stieg die Zahl auf 30.626 Meilen; in 1865 auf 35.085 Meilen; in dem einen Jahrzehnt, zwischen 1865 bis 1875 verdoppelte sich die Meilenausdehnung und betrug die Meilenziffer für genanntes Jahr 74.096 Meilen. Die Totalausdehnung des Eisenbahnnetzes betrug für das Jahr 1885 ca. 128.320 Meilen und die für das Jahr 1895 etwa 181.115 Meilen. Für das Jahr 1900 belief es sich auf 194.262 Meilen und für 1905 auf 217.328 Meilen. Nach Poor's Wegehandbuch belief sich der angehäufte Betrag aller zur Zeit errichteten Eisenbahnen dieser Staaten in 1905 auf nicht weniger als 11.666.000.000 Dollar, wohingegen der Totalbetrag aller Eisenbahnen der Welt sich auf nur 37.000.000.000 Dollar belief.

Die Total-Nettotonnage aller Dampf- und Segelboote der Welt, einschliesslich aller sol-Tonnage aller 24.500.000 Tons beliefen sich elf nach Lloyd's "Register" auf etwa sechs Millionen Tons Segelfahrzeuge und 18.500.000 Tons Dampffahrzeuge. Von dieser Gesammt-

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Falls der Kongress diesen von Herrn Hayes entworfenen Plan gutheisst, so dürften sich die Jahrekosten des Erntebericht-Systems von 19.000 Dollar auf etwa 250.000 Dollar jährlich erhöhen. Die erwachsenden Unkosten werden durch die Abschaffung des alten und die Einführung des neuen Systems zuvörderst bedingt werden, da die augenblickliche Sammelmemethode aller Ernteprodukte für Staat und Ortschaft einer totalen Aenderung unterzogen werden muss. Es werden 35 neue Distrikt-Chefs ernannt werden, die vereint mit den Beamten des Wetterbericht Departements in der Hauptstation eines jeden Staates ihre Thätigkeit entwickeln und überall Berichte sammeln werden.

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Auch soll eine gewisse Anzahl spezieller Agenten, deren Aufgabe es sein wird im ganzen Lande umherzu reisen, im Anschluss an zen Lande umherzureisen für den Bericht der Distrikte in Augenschein gestellt und ein Theil des neuen Systems werden. Es soll deren Aufgabe sein so weit als möglich den Distrikt Aufsehern zu helfen, damit jene genaue Information betreffs der Ernte Konditionen erhalten können. Die Hauptfrage die augenblicklich das Departement beschäftigt, ist, ob der Kongress willig sein wird diese Aenderungen vorzunehmen und weitere Auslagen zu bewilligen, selbst- hin auf die Versicherung des Departementes, welches grössere Genauigkeit in Allem durch dieses neue System verspricht.

Amerikanische landwirthschaftliche Maschinen und Geräthe werden vor dem Verlassen ihrer resp. Fabriken besichtigt—fehlerfrei müssen sie aus der Werkstatt.

THE PHILIPPINE PROBLEM

By WILLIAM JENNINGS BRYAN, in *The Commoner*

In speaking of Philippine independence, I have presented some of the reasons given by Filipinos for desiring it, but there are arguments which ought to appeal especially to Americans. If it were our duty to maintain a colonial policy, no argument could be made against it, because duties are imperative and never conflict. If, on the other hand, the Filipinos desire independence and are capable of self-government, we cannot justify the retention of the islands unless we are prepared to put our own interests above theirs, and even then we must be satisfied that our interests will be advanced.

In the beginning of the controversy, there were many who believed that the Philippine Islands would become a source of profit to the United States. It was confidently predicted that a multitude of Americans would flock to the Islands and find rich reward in the development of their resources. These hopes have not been realized. Except in Mindinao, of which I shall speak later, there is no evidence of any present or future colonization by Americans. There are a few Americans engaged in business in Manila and at other army posts, but these are insignificant in number, and the busines done by them is nothing, as compared with the cost of colonialism to the United States. We are maintaining about 12,000 American soldiers in the island and 5,000 native scouts, officered by Americans and paid for by the United States. Besides this outlay for the army, our Philippine policy has been made the excuse for a large increase in our naval expenditures. While it is difficult to determine accurately the annual cost of our Philippine policy to the people of the United States, it is safe to say that it exceeds the value of all the merchandise that we export to the Philippine Islands and all the money made by Americans in the islands, including salaries paid to Americans from taxes collected in the Philippines—and the expenses are borne by all the people, while the benefits are received by a mere handful. No one, therefore, can justify the holding of the Philippines on the ground that they are a pecuniary advantage.

If it is urged that we need the Philippine Islands as a base for the extension of our trade in the Orient, I answer that it is not necessary to deny the Filipinos independence in order to hold a sufficient number of harbors and coaling stations to answer all the requirements of trade. The Filipinos are not only anxious to have the advantage of our protection, but they recognize that to protect them we must have harbors and a naval base. In return for the services we have rendered them, we have a right to ask, and they would gladly grant, such reservations as we might need. These reservations could be properly fortified and would furnish coaling stations for both our navy and for our merchant marine. It goes without saying that in case we had war with an Oriental nation, it would be infinitely better to have the Filipinos supporting us, in their own interest as well as out of gratitude, than to have them awaiting an opportunity for insurrection.

I have already referred to the danger which may come to the principle of self-government in the United States from the denial of self-government to the Filipinos. As our officials can only explain their continued presence in the Philippines by alleging incapacity in the Filipinos, they find themselves unconsciously surrendering the governmental theories which were until recently universally accepted in our country. We cannot overlook the influence that these changed opinions may have upon the politics of our own country if a colonial policy is indefinitely continued.

Neither can we ignore the fact that our prestige as a teacher of the principles of republican government must be impaired if we hold colonies under the law of force, and defend ourselves by using the arguments employed by kings and emperors as an excuse for denying self-government to their own people. We cannot preach that governments derive their just powers from the consent of the governed, and at the same time adopt a different principle in practice.

It is also worth while to remember that foreign service is more or less demoralizing on our troops. Our soldiers are good, average men, but all men are more or less influenced by environment, and our soldiers cannot be expected to maintain a high standard of morality when far away from home and the influences of home, as when their good purposes are strengthened by the presence of mothers, sisters, and friends. The hospital records show the extent to which our soldiers yield to the temptations which surround the post, and the saloons that follow our army speak forcibly of the dangers which attend foreign service. Can we afford to subject the morals of our young men to such severe tests unless there is some national gain commensurate with the loss?

If our nation would at once declare its intention to treat the Filipinos living north of Mindanao as it treated the Cubans, and then proceed, first, to establish a stable government, patterned after our own; second, to convert that government into a native government by the substitution of Filipino officials as rapidly as possible; third, to grant independence to the Filipinos, reserving such harbors and naval stations as may be thought necessary; and fourth, to announce its purpose to protect the Filipinos from outside interferences while they work out their destiny—if our nation would do this, it would save a large annual expense, protect its trade interests, gratify the just ambition of the Filipinos for national existence, and repeat the moral victory won in Cuba.

In return for protection from without, the Filipinos would agree, as the Cubans did, that in their dealings with other nations, they would not embarass us.

The reservations retained could be converted into centers for the extension of American influence and American ideals, and our nation would increase its importance as a real world power. Unless our religion and our philosophy are entirely wrong, moral forces are more permanent and in the end more potent than physical force, and our nation has an opportunity to prove that a nation's greatness, like the greatness of an individual, is measured by service. It also has an opportunity to prove that the Oriental can be led by advice and improved by example, and does not need to be coerced by military power.

Our reservations ought to contain model schools, with a central college, experimental farms and institutions in which the people could be trained in the arts and industries most suited to the natural resources of the country. Our nation is unfitted by history and by tradition to exploit the tropical countries acording to the methods employed by some of the monarchies of Europe. To hold people in subjection requires a large military expenditure; if we were to attempt to make our own people bear such a burden, they would soon protest; if we were to make the Filipinos bear it, it would crush them. The Filipinos would resist such a policy, if employed by us, more bitterly than if it were employed by a European country, because they have learned from us the lessons of liberty. Subject peoples are not willing laborers, and our country would not endorse a system of compulsory labor. Education, too, is inconsistent with a permanent colonial system and cannot be carried far without danger to the ruling power.

We must choose, therefore, between two policies, and the sooner the choice is made, the better. As we cannot adopt the European policy without a radical departure from our ideals, and ultimately from our form of government at home, we are virtually forced to adopt a plan distinctly American—a plan in which advice, example, and helpfulness shall be employed as a means of reaching the native heart. Some of the European nations have been content to seize land and develop it with European capital and Chinese labor; our plan must be to develop the natives themselves, by showing them better methods and by opening before them a wider horizon. At our reservations, there would be religious freedom, freedom of speech, freedom of the press, self-government, and public instruction for all, and every uplifting influence would have free play. If we believe that right makes might and that truth has within itself a propagating power, we cannot doubt the spread of American civilization from these American centers.

While the Philippine Islands are under American authority, the government ought to be administered for the benefit of the Filipino, in accordance with Secretary Taft's promise. If they are to be subject to our tariff laws when they buy of other nations, they ought to have free trade with us; but the Philippine Islands are so far from us that it would be more just to allow the Philippine tariff to be made by the Philippine assembly, soon to be established. The Filipinos belong to the Orient, and their dealings must be largely with the countries of the Orient; unless they are in a position to have their tariff laws conform to their geographical position, there must necessarily be friction and injustice.

So important are geographical considerations, that Americans who see fit to take up their residence upon such reservations as we retain for harbors, coaling stations, and a naval base, ought to be freed from the fetters of our tariff laws and shipping laws. I even venture to suggest the creation of an Oriental territory, to be composed of such stations and

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Falls der Kongress diesen von Herrn Hayes entworfenen Plan gutheisst, so dürften sich die Jahrekosten des Erntebericht-Systems von 19,000 Dollar auf etwa 250.000 Dollar jährlich erhöhen. Die erwachsenden Unkosten werden durch die Abschaffung des alten und die Einführung des neuen Systems zuvörderst bedingt werden, da die augenblickliche Sammelmethode aller Ernteprodukte für Staat und Ortschaft einer totalen Aenderung unterzogen werden muss. Es werden 35 neue Distrikt-Chefs ernannt werden, die vereint mit den Beamten des Wetterbericht Departements in der Hauptstation eines jeden Staates ihre Thätigkeit entwickeln und überall Berichte sammeln werden.

Ein Distrikt-Chef soll nach jedem Hauptstaat, der Mittelpunkt für Cerealien und Baumwolle ist, entsandt werden; dort wird er die Berichte direkt von den Berichterstattern eines jeden Dorfes und Fleckens zu sammeln haben; auch soll jeder Distrikt-Chef selbst im Staate umherreisen und event. Thatsachen direkt einziehen. Die Berichte einer jeden Grafschaft aber sollen wie zuvor direkt nach Washington gesandt werden. Die Ernteberechnungs Behörde des Departements soll übrigens wie bisher intakt verbleiben, doch werden die Schluss-Aufstellungen in den meisten Fällen einzig und allein von den Distrikt-Chefs gemacht werden.

Auch soll eine gewisse Anzahl spezieller Agenten, deren Aufgabe es sein wird im ganzen Lande umherzu reisen, im Anschluss an zen Lande umherzureisen für den Bericht der Distrikte in Augenschein gestellt und ein Theil des neuen Systems werden. Es soll deren Aufgabe sein so weit als möglich den Distrikt Aufsehern zu helfen, damit jene genaue Information betreffs der Ernte Konditionen erhalten können. Die Hauptfrage die augenblicklich das Departement beschäftigt, ist, ob der Kongress willig sein wird diese Aenderungen vorzunehmen und weitere Auslagen zu bewilligen, selbst- hin auf die Versicherung des Departementes, welches grössere Genauigkeit in Allem durch dieses neue System verspricht.

Amerikanische landwirthschaftliche Maschinen und Geräthe werden vor dem Verlassen ihrer resp. Fabriken besichtigt—fehlerfrei müssen sie aus der Werkstatt.

THE PHILIPPINE PROBLEM

By WILLIAM JENNINGS BRYAN, in *The Commoner*

In speaking of Philippine independence, I have presented some of the reasons given by Filipinos for desiring it, but there are arguments which ought to appeal especially to Americans. If it were our duty to maintain a colonial policy, no argument could be made against it, because duties are imperative and never conflict. If, on the other hand, the Filipinos desire independence and are capable of self-government, we cannot justify the retention of the islands unless we are prepared to put our own interests above theirs, and even then we must be satisfied that our interests will be advanced.

In the beginning of the controversy, there were many who believed that the Philippine Islands would become a source of profit to the United States. It was confidently predicted that a multitude of Americans would flock to the Islands and find rich reward in the development of their resources. These hopes have not been realized. Except in Mindinao, of which I shall speak later, there is no evidence of any present or future colonization by Americans. There are a few Americans engaged in business in Manila and at other army posts, but these are insignificant in number, and the busines done by them is nothing, as compared with the cost of colonialism to the United States. We are maintaining about 12.000 American soldiers in the island and 5.000 native scouts, officered by Americans and paid for by the United States. Besides this outlay for the army, our Philippine policy has been made the excuse for a large increase in our naval expenditures. While it is difficult to determine accurately the annual cost of our Philippine policy to the people of the United States, it is safe to say that it exceeds the value of all the merchandise that we export to the Philippine Islands and all the money made by Americans in the islands, including salaries paid to Americans from taxes collected in the Philippines—and the expenses are borne by all the people, while the benefits are received by a mere handful. No one, therefore, can justify the holding of the Philippines on the ground that they are a pecuniary advantage.

If it is urged that we need the Philippine Islands as a base for the extension of our trade in the Orient, I answer that it is not necessary to deny the Filipinos independence in order to hold a sufficient number of harbors and coaling stations to answer all the requirements of trade. The Filipinos are not only anxious to have the advantage of our protection, but they recognize that to protect them we must have harbors and a naval base. In return for the services we have rendered them, we have a right to ask, and they would gladly grant, such reservations as we might need. These reservations could be properly fortified and would furnish coaling stations for both our navy and for our merchant marine. It goes without saying that in case we had war with an Oriental nation, it would be infinitely better to have the Filipinos supporting us, in their own interest as well as out of gratitude, than to have them awaiting an opportunity for insurrection.

I have already referred to the danger which may come to the principle of self-government in the United States from the denial of self-government to the Filipinos. As our officials can only explain their continued presence in the Philippines by alleging incapacity in the Filipinos, they find themselves unconsciously surrendering the governmental theories which were until recently universally accepted in our country. We cannot overlook the influence that these changed opinions may have upon the politics of our own country if a colonial policy is indefinitely continued.

Neither can we ignore the fact that our prestige as a teacher of the principles of republican government must be impaired if we hold colonies under the law of force, and defend ourselves by using the arguments employed by kings and emperors as an excuse for denying self-government to their own people. We cannot preach that governments derive their just powers from the consent of the governed, and at the same time adopt a different principle in practice.

It is also worth while to remember that foreign service is more or less demoralizing on our troops. Our soldiers are good, average men, but all men are more or less influenced by environment, and our soldiers cannot be expected to maintain a high standard of morality when far away from home and the influences of home, as when their good purposes are strengthened by the presence of mothers, sisters, and friends. The hospital records show the extent to which our soldiers yield to the temptations which surround the post, and the saloons that follow our army speak forcibly of the dangers which attend foreign service. Can we afford to subject the morals of our young men to such severe tests unless there is some national gain commensurate with the loss?

If our nation would at once declare its intention to treat the Filipinos living north of Mindanao as it treated the Cubans, and then proceed, first, to establish a stable government, patterned after our own; second, to convert that government into a native government by the substitution of Filipino officials as rapidly as possible; third, to grant independence to the Filipinos, reserving such harbors and naval stations as may be thought necessary; and fourth, to announce its purpose to protect the Filipinos from outside interferences while they work out their destiny—if our nation would do this, it would save a large annual expense, protect its trade interests, gratify the just ambition of the Filipinos for national existence, and repeat the moral victory won in Cuba.

In return for protection from without, the Filipinos would agree, as the Cubans did, that in their dealings with other nations, they would not embarass us.

The reservations retained could be converted into centers for the extension of American influence and American ideals, and our nation would increase its importance as a real world power. Unless our religion and our philosophy are entirely wrong, moral forces are more permanent and in the end more potent than physical force, and our nation has an opportunity to prove that a nation's greatness, like the greatness of an individual, is measured by service. It also has an opportunity to prove that the Oriental can be led by advice and improved by example, and does not need to be coerced by military power.

Our reservations ought to contain model schools, with a central college, experimental farms and institutions in which the people could be trained in the arts and industries most suited to the natural resources of the country. Our nation is unfitted by history and by tradition to exploit the tropical countries acording to the methods employed by some of the monarchies of Europe. To hold people in subjection requires a large military expenditure; if we were to attempt to make our own people bear such a burden, they would soon protest; if we were to make the Filipinos bear it, it would crush them. The Filipinos would resist such a policy, if employed by us, more bitterly than if it were employed by a European country, because they have learned from us the lessons of liberty. Subject peoples are not willing laborers, and our country would not endorse a system of compulsory labor. Education, too, is inconsistent with a permanent colonial system and cannot be carried far without danger to the ruling power.

We must choose, therefore, between two policies, and the sooner the choice is made, the better. As we cannot adopt the European policy without a radical departure from our ideals, and ultimately from our form of government at home, we are virtually forced to adopt a plan distinctly American—a plan in which advice, example, and helpfulness shall be employed as a means of reaching the native heart. Some of the European nations have been content to seize land and develop it with European capital and Chinese labor; our plan must be to develop the natives themselves, by showing them better methods and by opening before them a wider horizon. At our reservations, there would be religious freedom, freedom of speech, freedom of the press, self-government, and public instruction for all, and every uplifting influence would have free play. If we believe that right makes might and that truth has within itself a propagating power, we cannot doubt the spread of American civilization from these American centers.

While the Philippine Islands are under American authority, the government ought to be administered for the benefit of the Filipino, in accordance with Secretary Taft's promise. If they are to be subject to our tariff laws when they buy of other nations, they ought to have free trade with us; but the Philippine Islands are so far from us that it would be more just to allow the Philippine tariff to be made by the Philippine assembly, soon to be established. The Filipinos belong to the Orient, and their dealings must be largely with the countries of the Orient; unless they are in a position to have their tariff laws conform to their geographical position, there must necessarily be friction and injustice.

So important are geographical considerations, that Americans who see fit to take up their residence upon such reservations as we retain for harbors, coaling stations, and a naval base, ought to be freed from the fetters of our tariff laws and shipping laws. I even venture to suggest the creation of an Oriental territory, to be composed of such stations and

INTENTIONAL SECOND EXPOSURE

reservations as we may now have or hereafter acquire in the Orient. This territory should have a delegate in Congress, like other territories, but should be free by Constitutional amendment from our tariff laws and permitted to legislate for itself upon the subject. It could thus establish free ports, if it chose, and give to its people the trade advantages enjoyed by those who live in Hong Kong, Singapore, and other open ports.

In what I have said about independence and self-government in the Philippines, I have been speaking of Luzon and other islands north of Mindanao. As I have already pointed out, the conditions existing in Mindanao and the Sulu archipelago are so different from those existing in the northern islands that the two groups must be dealt with separately. It would not be fair to deny independence to the Christian Filipinos living in the north merely because the Moros have never shown any desire to adopt a republican form of government. (They live under a sort of feudal system, with the sultan and datu as the ruling lords.)

But while the work in establishing a stable government among the Moros is a more difficult one and will proceed more slowly, the same principles should govern it. The Moros have furnished a great many pirates for the southern seas, and the influence of the adventurer and free-booter is still felt in Moroland. Then, too, they have an unpleasant way of killing Christians, on the theory that by doing so, they not only insure an entrance into heaven, but earn the right to four wives in their celestial home. Occasionally a Moro takes an oath to die killing Christians (he is called a juramentado), and after a season of fasting and prayer, and generally with shaven eyebrows, he goes forth to slay until he himself is slain. Besides those who deliberately take human life by retail or by wholesale, there are religious fanatics who act under frenzy. All in all, the Moro country is far below the northern islands in civilization, whether civilization is measured by a material, an intellectual, a political, or a moral standard. But even among the Moros, I believe it is possible to introduce American ideas. Already some progress is being made in the establishment of schools, and Governor Findley has succeeded in interesting the natives in exchanges where trade is carried on according to American methods. While polygamy is still permitted, slavery is being exterminated, and the natives are being shown the advantage of free labor. I believe that even among them, our work can be advanced by assuring them of ultimate independence, to be granted as soon as a government is established capable of maintaining order and enforcing law. By educating young Moros and then using them in official positions, we can convince the Moros of the sincerity of our friendship, and these officials will exert an increasing influence for good. In the meantime, we should establish experimental stations, and by the use of native labor, train the people to make the best use of the resources of their country. I believe that General Wood is already planning for an experimental farm near Zamboanga.

While the Moros are a fierce people and accustomed to bloodshed, they have enough good qualities to show the posibility of improvement. They are a temperate people, abstaining entirely from intoxicating liquors, and while they practice polygamy and add concubinage to plurality of wives, they carefully guard the chastity of their women. They have their system of laws, with courts for the investigation of criminal charges and for the imposition of fines. The existing code in the Sulu archipelago, while lamentably below our penal code, shows a desire for the establishment of justice between man and man. Dr. Saleeby has published a translation of the existing code, together with the code (not yet adopted) prepared by the prime minister of the sultan, and a comparison of the two shows distinctly that American influence is already being felt.

While I do not believe that any large number of Americans can be induced to settle permanently in Mindanao (and Mindanao seems to be the most inviting place), there will be ample time to test this question while a government is being established among the Moros. It is more likely that the waste lands will be settled upon by emigrants from the northern islands, and that in time the Christian Filipinos will be sufficiently numerous to control the islands, and they can be annexed to the northern group.

The leaven of American ideas is already spreading. At Zamboanga, we met Datu Mandi, who has adopted the American dress and opened one of his buildings for a Moro school for girls. He is manifesting an increasing interest in the American work. Datu Mandi's brother was one of the Moros taken to the World's Fair, and he, too, has abandoned the native dress. I have already referred to the desire expressed by Datu Piang to have his sons attend school in America. This is a good sign, and money spent in educating them would reduce military expenditures in that part of the island. The Sultan of Sulu also wants to visit America, and a trip would do him more good than a year's salary. As soon as we convince these people that our purpose is an unselfish one, they will become willing pupils, and, in the course of time, they will find the home more congenial than the harem, and the ways of peace more pleasant than the war path.

While our plans should be unselfish, they would probably prove profitable in the end, for friends are better customers than enemies, and our trade is apt to develop in proportion as we teach the natives to live as we do. When Solomon came to the throne, instead of choosing riches or long life, he asked for wisdom, that he might govern his people aright, and he received not only wisdom, but the riches and the length of days which he had regarded as less important. May we not expect a similar reward if we choose the better part and put the welfare of the natives above our own gain?

After all, the test question is, "Have we 'faith in the wisdom of doing right?' Are we willing to trust the conscience and the moral sense of those whom we desire to aid?"

Individuals have put Christianity to the test, and have convinced themselves that benevolence unarmed is mightier than selfishness equipped with sword and mail; but nations have, as yet, seldom ventured to embody the spirit of the Nazarene in their foreign policy. Is it not an opportune time for our nation to make the trial? Our President has recently been hailed as a peacemaker because he took the initiative in terminating a great war, but this involved no sacrafice on our part. May we not win a greater victory by proving our disinterested concern for the welfare of a people separated from us not only by vast waters, but by race, by language, and by color.

Carlyle, in concluding his history of the French Revolution, declared that thought is stronger than artillery parks, and that back of every thought is love. This is a lofty platform, but not too lofty for the United States of America.

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A reporter from THE EXPORT IMPLEMENT AGE, on his rounds recently called on F. E. Myers & Bro., Ashland, Ohio, and found their immense factory running full force night and day, turning out pumps at the rate of a complete pump every minute, besides miles of steel track for barn doors and hay carriers, and hundreds of hay forks and carriers per day, to say nothing of the thousands of barn door and gate hangers, bicycle stands and other specialties, among which the reporter noticed a large number of their store ladders being packed for foreign shipment.

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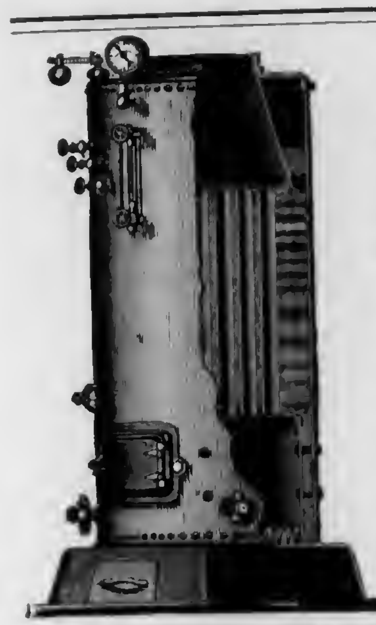

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SOME RECENT INVENTIONS

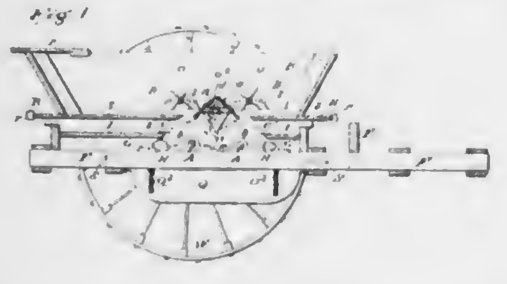
The following recent inventions have been specially reported for THE EXPORT IMPLEMENT AGE by C. LeRoy Parker, Solicitor of Patents, 707 G Street, N. W., Washington, D. C.

Fertilizer-Distributor

No. 813,881. John K. Gourdin. February 27, 1906.

This invention aims to specially provide a fertilizer-distributor for use with cotton-seed and in the use of which the cotton-seed, which is largely used as a fertilizer in Southern sections, may be crushed.

As shown in the figure the invention comprises the combination of framing, crushing and force-feed rollers corrugated longitudinally and meshing at their meeting faces, and having the depth of their corrugations comparatively shallow relative to the width of the same, bearings and operating means for the rollers, scraping-blades bearing at their free edges against the corrugated rollers, pivoted saddles supporting the said blades, a hopper over the corrugated rollers, a feed device above the rollers and arranged intermediate the same and having inclined feed-boards adjustably supported, bottom boards arranged in front and rear of the feed device and movable toward and from the feed-boards and having flexible valve-plates bearing against their respective rollers.

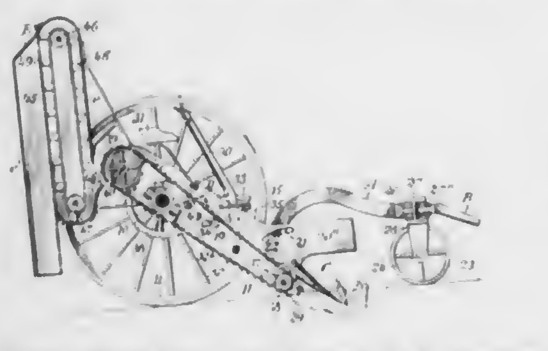


It will be understood from the figure and the foregoing description that the rollers, corrugated as described, operate to crush the seeds and also as a force-feed, delivering material positively from the machine as it proceeds when the different parts are in feeding position.

Machine for Digging Beets

No. 813,978. Allington H. Kramer. February 27, 1906.

The beet digger illustrated herewith is claimed to be simple, light, durable and economical and embodies devices for automatically lifting beets from the ground in a manner designed to avoid injuring them, a conveyor which receives the uprooted beets, and an elevator device which receives the beets from the conveyor and delivers them to any desired receptable.



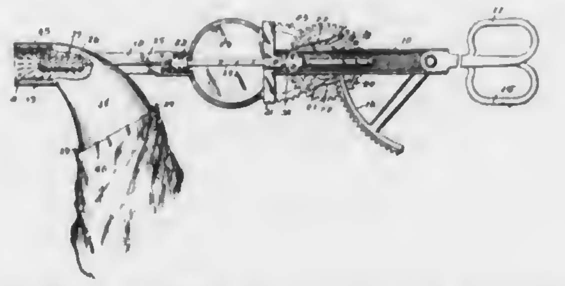
The machine as constructed to fill the above requirements comprises supporting-wheels secured to the axle and provided with a clutch-surface at one end, a clutch operating on the axle and arranged for engagement with the clutch-surface of the sleeve, gears secured on the sleeve and the axle, a frame mounted to turn on the axle between the gears, the frame being provided with opposing segmental slots, beams located at the outer portions of the frame, the rear ends of the beams being curved downwardly and forwardly, a shaft connecting the beams and carried through the slots in the frame, a lever operatively with the frame and with the connecting-shaft of the beams, a shovel or scoop plow carried by the lower portion of the beams, and an elevator carried by the frame, over which a portion of the plow extends.

Cotton Picker

No. 815,675. L. Blount March 20, 1906

The objects of this invention are to provide a cottonpicker which is designed to be operated either by hand or by power imparted to it from a motor and which is so constructed as to draw the cotton from the boll through a cylinder and force it into a tube, from which it is delivered into a bag or other receptacle connected with the tube.

A further object is to provide a cotton-picker which is adapted for continuous operation, that is one so arranged that the piston can be continuously operated either through the handles or by the motor, so that there will be no interruption in the process of removing the cotton from the bolls, and thus enable the operator to rapidly pick the cotton.



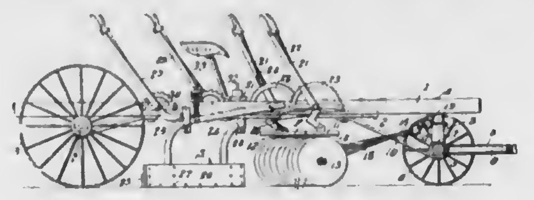
The machine consists of a cylinder, teeth on the interior of the cylinder, a piston carrying a head, teeth on the piston head designed to operate between the teeth of the cylinder and to extend outside of the cylinder as it is reciprocated, means for reciprocating the piston, and a tube attached to and communicating with the cylinder.

Disc Land Cultivator, Road Machine and Farm Wagon

No. 816,035. A. L. Foote March 27, 1906

The purpose of this invention is to provide a machine which may be usefully employed not only for cultivating land, but also for smoothing and repairing the surfaces of roads, and which when the land and road working implements are detached shall present a frame upon which a wagon box or bed may be supported, thus coverting the machine into a farm-wagon for general use.

A carrying-frame including side members is provided. This is supported upon a hind axle and a front bolster. A front axle is pivoted beneath the bolster. To these are secured an adjustably-supported disk-carrying frame, a disk-carrying shaft in said frame, and means for connecting said shaft flexibly with the front bolster to one side of the line of draft; a draft member connected rigidly with the front axle; beams pivoted upon the side beams of the carrying-frame, a scraper carried by said beams, springs disposed to exert downward pressure upon the scraper-carrying beams, and means for adjusting said beams and for retaining them at various adjustments.

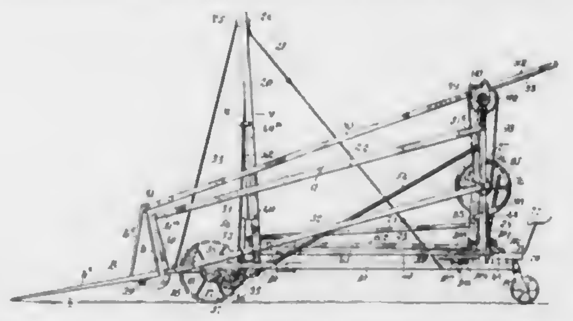


Hay Rake and Stacker

No. 816,346, O. B. Mann March 27, 1706

The purpose of this invention is to provide a hay rake or stacker which will gather up the hay as the machine advances and when a load is obtained raise the rake, so that its load will not trail upon the ground while the machine is being drawn to the stack, and which when the stack is reached will enable the rake to be elevated as high as desired, held in elevated position, and the load discharged.

The rake is automatically carried from direct engagement with the ground by the action of draft devices, two of which are employed one at each side of the machine, and each of the said devices consists of a long draft-tree 104, fulcrumed at a point 105 between its center and outer end on a side portion of the main frame A as is shown by dotted lines in Fig. 1, and the inner ends of these draft-trees approach each other at a point beneath the platform 78. Each draft device is completed by the addition of a swingletree 106 to the outer end portion of each long draft-tree 104. Chains 107 are attached to the two draft-trees 104, and said chains 107 of the two draft-trees are brought together and are connected by a single chain 108, which single chain is passed upward over a friction-pulley 109, located at the forward portion of the opening 102 in the platform 78, and the other end of the said chain 108 is attached in any suitable manner to the bottom portion of the swinging standard 85. Thus when the team starts forward as the team faces forward the draft devices immediately upon being placed under tension will act upon the bottom of the swinging standard 86 to automatically raise the teeth of the rake a distance from the ground limited by the adjustment of the controlling-lever 99. This controlling-lever 99 may be brought into action whenever it is desired to so elevate the outer ends of the rake-teeth as to cause the teeth to clear any mound or like obstruction in the path of the machine.



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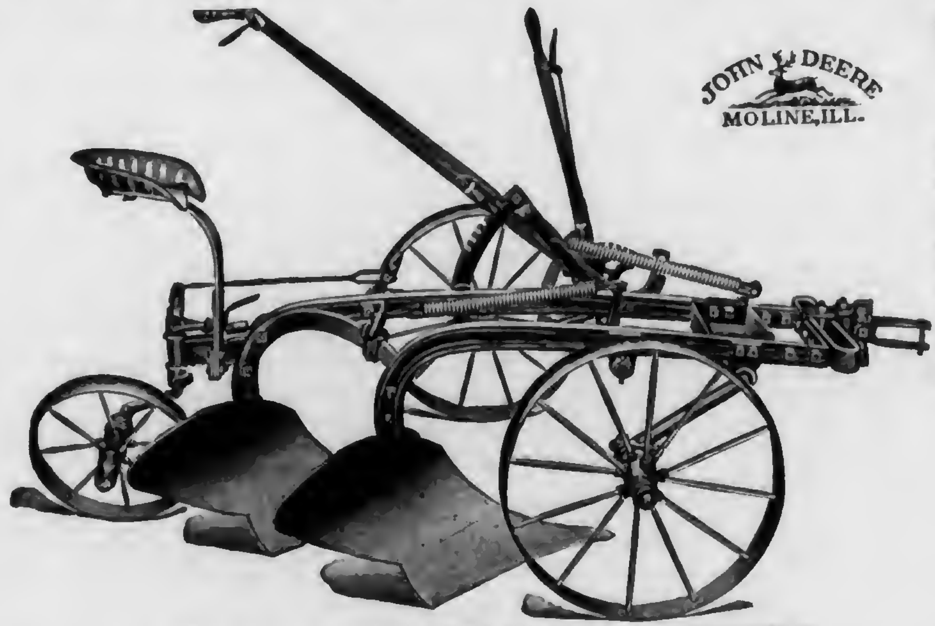

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In connection with the recent earthquake at San Francisco, a colossal disaster of universal interest, we quote the following comment from *Popular Mechanics:*

"It is not the province of a magazine of the nature of *Popular Mechanics* to go into the news details of the San Francisco earthquake of April 18th. The daily press has already covered the subject with its customary energy and completeness. There are some mechanical features, however, which may be mentioned here.

"Great interest has been centered in the modern steel structures, which seem to have withstood the shock with unexpected strength, although afterwards ruined by the flames. The report of the expert builders will not be ready for another month, when important data may be expected.

"Had the destruction ended with the earthquake, the disaster, while great, would have been small compared to the devastation by fire which immediately followed. Buildings containing steam boilers, which went down at once broke into flames; matches even ignited in the crush and started other fires; and in a large number of instances live electric wires, whose insulations were torn off, or which parted, thus exposing bare ends, continued to furnish a flame which was soon lost in a conflagration. In Oakland and San Jose, the railway and lighting plants were instantly shut down, which accounts for the comparative immunity from fire in these two cities. In San Francisco there seems to have been some delay in shutting off the current.

"The reservoirs which contain the water supply are located some miles away, and the mains were broken by the shock, thus rendering the fire department helpless except along the water front, where salt water was available from the bay. Splendid work was done along the docks and the great Ferry building, the gateway of San Francisco, saved. In one instance a fire which had made a good start was extinguished by breaking in the heads of great casks of wine which was dipped out with pails, and the building saved. It has been suggested that a water system for fire service may now be built in which salt water can be pumped through steel pipes laid on or close to the surface; the steel pipes being expected to resist much greater shock than the ordinary cast-iron pipes, which readily open at the joints, whereas the steel pipes would be joined by extra large unions screwed on to extra heavy threads.

"The promptness with which the water companies restored service solved the most serious trouble of the afflicted city, and came as a great relief to the entire country.

"The railroad service for the city is chiefly from across the bay, passengers and freight cars being brought over in the largest ferries in the world. The promptness and efficiency of the steam transportation lines was something surprising and demonstrated an organization fully equal in its way to that of the regular army. The relief trains which started within a few hours from all parts of the country, together with the national response with contributions of money from millionaire to newsboy, presented a picture of American sympathy and energy which could not have been duplicated by any other nation in the world. The prompt efficiency of the relief movement was emphatically American, and characteristic of the American way of doing things in an emergency. But for this instant action thousands would have lost their lives.

The telegraph service for some days was confined to press and official messages, and under the circumstances was very good. While the wires were closed to private messages, one man in San Francisco used the Pacific cable and sent a message to relatives in Berlin, who in turn repeated the message over an Atlantic cable and thence to Los Angeles, where his family were staying. This message made the complete circuit of the globe in transmission from 'Frisco to Los Angeles, a distance of 482 miles.

The use of artillery in leveling buildings in an attempt to check the passage of the fire was something which rarely occurs, and we believe has not been resorted to in this country since the Chicago fire. Among the discoveries after the fire was an extensive system of underground passages extending through Chinatown, a veritable catacombs two and three stories underground.

A notable feature of the commissary work was the equipment, at Los Angeles, of the longest mess train in the world. Thirty cars were hastily rebuilt and equipped as kitchens and bakeries, and provided with facilities for cooking and serving 20,000 meals a day. When one considers that 100 meals is a good day's work for the average palace dining car, the performance of this great "cook train" is better appreciated.

The automobile made a new record for itself. One of the first orders when Gen. Funston took charge was to confiscate all the automobiles in town, to be used in ambulance and relief work. Several new machines were discovered in freight cars, and these were run out and put to work.

The work of the regulars, disciplined, seasoned men, was of incalculable benefit, and abundantly demonstrated the value of a standing army in times of peace. To these men, trained to stand under fire, there was no occasion for excitement when marched into a burning city shaking with earthquakes. In no war could Gen. Funston performed a greater service than he did there.

The earthquake, like a cyclone, played many curious freaks. For instance, in the midst of ruined four-story buildings stood a house of three stories, which had been lifted on jack screws and timbers to make room for another story beneath it. It stood apparently unharmed by the shock. Not a piece of the underpinning was displaced. One of the churches on Van Ness avenue had a mosque-like dome. The building was down, all the walls falling away, but the steel structure, invisible at a distance, remained supporting the dull gray dome, which seemed floating in the air like a balloon.

The rebuilding of the city, to which its citizens have already set themselves with western courage and energy, affords an opportunity which has no parallel in modern times.

The destruction was so complete and covered so large an area that it is now possible to lay out a really large city along twentieth century ideas and ideals. Whether it will be found practicable to do so remains to be seen. Be that as it may, the more important thing is the restoration of a great city at the Golden Gate, and in the accomplishment of this, which will be done with true western intenseness of activity, the builders of the new city will have the sympathy and assistance of the civilized world.

THE WORLD'S WHEAT SUPPLY

It seems a curious thought that the supremacy of Western civilization—the ascendency of the wheat-eaters over the rice-eaters—may ultimately depend upon the discovery of some cheap process of producing nitrates; but so eminent an authority as Sir William Ramsay is sponsor for the statement.

More than five years ago, Sir William Crookes declared the population of the world to be increasing so rapidly that in a short time the supply of wheat would be insufficient. Since then, progress has been made in several experiments directed toward increasing the world's harvest of wheat. Nevertheless, many scientific men feel that a wheat famine within a few genrations is among the possibilities.

Efforts toward averting or postponing this condition are directed: First, toward increasing the acreage—a process which is self-limited; secondly, toward increasing the yield per acre by improving the seed and selecting that which is best suited to the locality where it is to be planted; thirdly, toward increasing the crop by feeding the plants more generously with nitrogen through alternation with nodule-producing leguminous plants—a process developed by the United States Department of Agriculture; and fourthly, by the manufacture of nitrates.

For years, the supply of nitrates has come from Chile, but that source is nearing exhaustion. The sewage of cities would supply enormous quantities if there could be found some method of saving and applying it which would not endanger the public health. It is estimated that eighty million dollars' worth of fertilizer goes annually to waste in this way in England alone.

The artificial manufacture, or rather the fixation, of nitrogen looks to the air as the great source of supply. But the processes now in use are complicated and expensive. Many patents have been issued. One of the latest plants is that at Svaelgfoss, Norway, in which a waterfall of thirty thousand horse-power has been utilized to generate electricity, by which nitrogen is taken from the air and absorbed by lime. The resulting calcium nitrate is a powerful fertilizer.

In this problem the young chemists and the young electricians of to-day have a work which will tax the ablest and ought to satisfy the most ambitious.

Export Implement Age

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TRADE-MARKS IN ENGLAND

In England they are at present accustoming themselves to a new trade-mark law. The new law is of no less interest to Englishmen than to American or other manufacturers who are selling goods in Great. Britain, and for that reason should be carefully studied by American exporters. It likewise contains many points of interest to inventors and patent attorneys.

The new law gives in its opening sentences its own definition of the term "trade-mark." This, it states, "shall mean a mark used or purposed to used upon or in connection with goods for the purpose of indicating that they are the goods of the proprietor of such trade-marks by virtue of manufacture, selection, certification, dealing with, or offering for sale." Hitherto it has been necessary to use a trade-mark on goods, or on the package containing them. Now the mark may be used in connection with goods, that is, by circulars or by advertisements. The registered proprietor may be any one, practically, who handles the goods. Hitherto, trade-marks have been held exclusively by manufacturers and merchants; now the buyer who selects and the expert who certifies the goods may each register his brand.

A registerable trade-mark must contain at least one of the following essential particulars:—(1) The name of a company, individual or firm represented in a special or particular manner; (2)the signature of the applicant for registration or some predecessor in his business; (3)an invented word or invented words; (4) a word or words having no direct reference to the character or quality of the goods, and not being according to its ordinary signification a geographical name or a surname. Any distinctive word used as a trade-mark by the applicant or his predecessors in business before August 13, 1875, which has continued to be used down to the date of the application for registration, is registrable as a trade-mark under the present act.

It is specified that to be regarded as "distinctive" a word must be adapted to distinguish the goods of the proprietor of the trade-mark from that of other persons. A new feature in the act is that the question of the color of a trade-mark may be taken into consideration by any tribunal that may have to decide on the distinctive character of a mark. This may on occasion be favorable to the applicant for registration of a colored ticket in a case where he is prepared to limit the coloring of the ticket.

A company will now for the first time be allowed to register its name if represented in a special or particular manner. The registration of the signature of the aplicant's predecessor is also a useful innovation, as it enables a joint-stock company to register its founder's signature as a new mark. Words having indirect reference to the character or quality of the goods may now be registered. Geographical names and surnames also, which have been excluded under the present law, will now be registrable, if their ordinary signification is not a geographical name or a surname.

REFUSED REGISTRATION.

Hitherto many good trade-marks have been refused registration because they were found among the names in the gazette and directories which include "Abbey" "Brook," "Palmer," "Silver," and "Golden" among thousands of common names. Any other distinctive mark can be registered. This is very broad, as it is stated that a mark includes a device, brand, label, ticket, name, signature, word, letter, number, or any combination thereof.

The registration of associated trade-marks is another important and useful provision.—*N. Y. Commercial*.

A FRIENDLY CALL

Secretary Root has announced that after the Pan-American congress in Rio Janeiro, he will proceed to visit the chief countries of South America. His object is to become better acquainted with those countries and especially to reassure their rulers that the United States does not desire 1 inch of the territory of any of them. He points to the dealings of the United States with Cuba as a proof of the honesty with which the United States carries out moral obligations.

This administration is the first in the history of the country which has adopted the European custom of exchanging informal visits with other governments. The nation has had its official representatives, ambassadors, ministers, and envoys, but usage is opposed to a visit to foreign countries by the head of the State. In Europe, not only hereditary sovereigns, but also such a ruler as the president of France is able to travel and meet the heads of other states in an informal way, in which good is often accomplished. Matters which are not of a nature to be presented officially can be discussed confidentially, and subsequently formulated into a treaty or a law. Since usage is opposed to presidential peregrinations in foreign parts, the present administration has hit upon the scheme of sending one of the Cabinet, who is not only more familar with the President's wishes than any ambassador could be, but is also in a position to make effective suggestions on his return to Washington. Thus Mr. Taft has visited the courts of China and Japan, and now Mr. Root is to visit the capitals of the more important states of South America.

There can be no doubt as to the importance of closer relations with the other American states. The reunion of the nations in a Pan-American Congress is a proof that they all recognize the mutual benefits of such intimacy. It is not merely a mater of financial profit, although from that standpoint alone, closer relations are worth seeking. There is the need of an understanding, if not an express alliance, in order to keep America for the Americans and to prevent European nations either threatening the political independence of the South American states or using them as bases of action against the United States. The possession of the canal strip makes the United States, to a certain extent, a South American power, and the canal, when dug, ought to result in increased traffic between the two continents. The European powers interested in keeping the various American nations apart have placed the worst possible construction upon the relations of the United States to the establishment of the Republic of Panama. The visit of Mr. Root will go far toward allaying fears which may have been stimulated in this way. It is a compliment of a high order to the nations visited, and is a happy thought of the President.—*Chicago Tribune.*

A CATALOGUE OF STANDARD AMERICAN IMPLEMENTS

A new catalogue has just been issued by the David Bradley Mfg. Co., Bradley, Ill., U. S. A., and every one of our readers interested in knowing the latest and best products in American implements, should send at once for a copy. It is a beautiful book, and will open the eyes of those who do not already realize the extent and magnitude of the modern American implement establishments.

The book contains a portrait of Mr. David Bradley, the late president of the company, taken a few days previous to the completion of his eighty-seventh year, at which time he was the oldest plow maker in the United States, having been in the business since 1832. In 1835, he established the present business in Chicago, helping to erect the first foundry at that place, and he enjoyed the distinction of having been the first man to bring pig iron into that city.

About ten years ago, the business had grown to such dimensions as to necessitate its removal from the crowded districts of Chicago to Bradley, Ill., where ample room was available for laying out the factory buildings in the most convenient and approved plan. A brief reference to the buildings and grounds will convey an idea of the tremendous proportions of the Bradley implement business.

The ground occupied by the buildings is about ten acres, while adjoining the works, the company have twenty-six acres more. The two main buildings are each 400 x 80 feet, three stories high, with basement. The blacksmith's shop is 350 x 80 feet, and there has lately been erected a grinding room, 30 x 400 feet. The one-story building at the left of and fronting with the main buildings is 200 x 50 feet. The foundry is 200 x 80 feet, with a proposed addition of 200 x 80 feet more, and the dry house, 160 x 80 feet. There are, besides, the paint stock house, power houses, coal sheds, etc.

The company have long been recognized as among the leading exporters, and the Bradley goods are known in all the markets of the world. The catalogue which we refer to is denominated Catalogue No. 39, and is devoted to the Bradley line of plows, cultivators, planters, horse and steam power baling presses, lever harrows, disc harrows, etc. Separate catalogues are furnished for each of the following lines:

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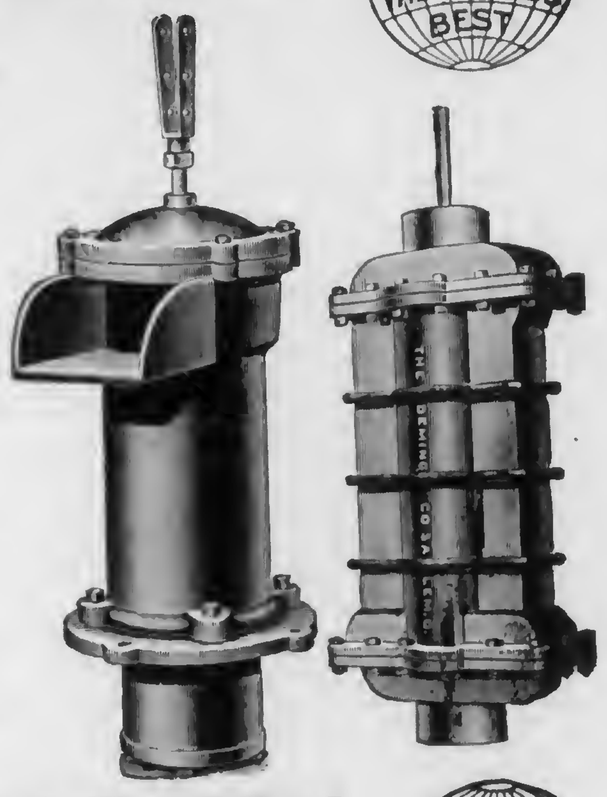

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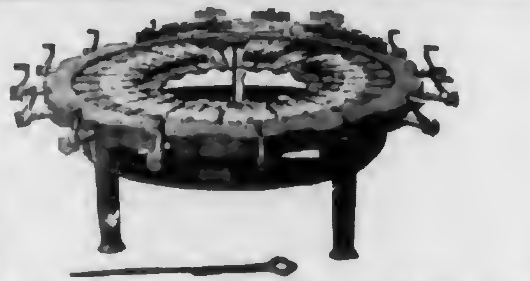

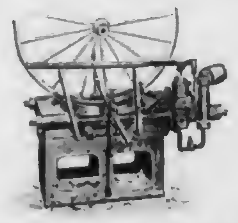

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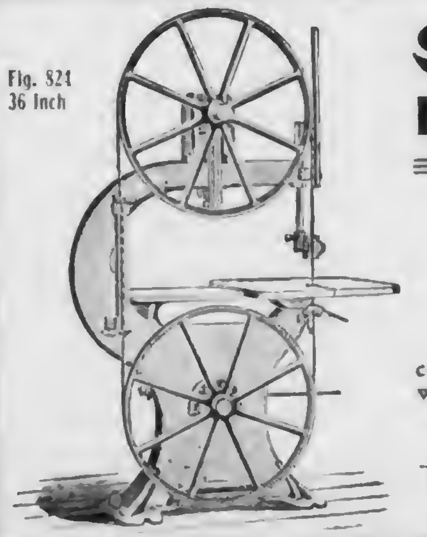

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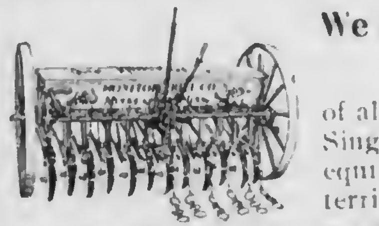

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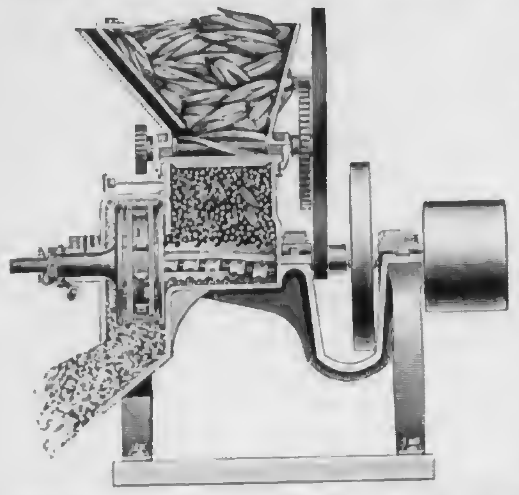

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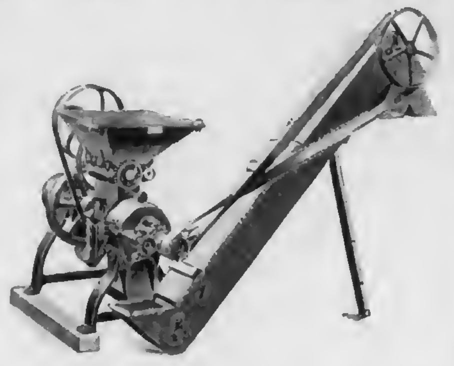

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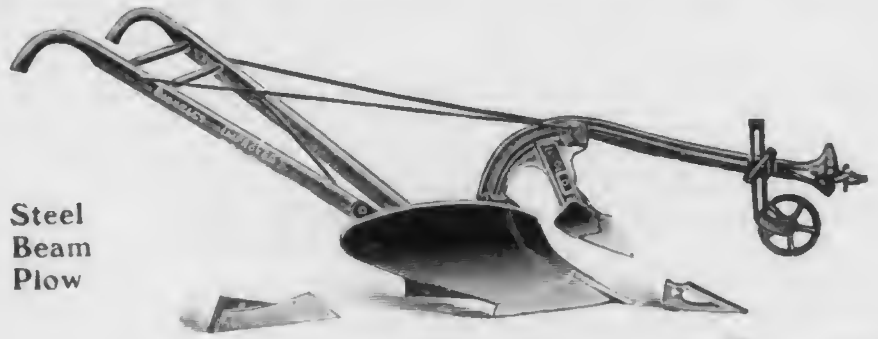

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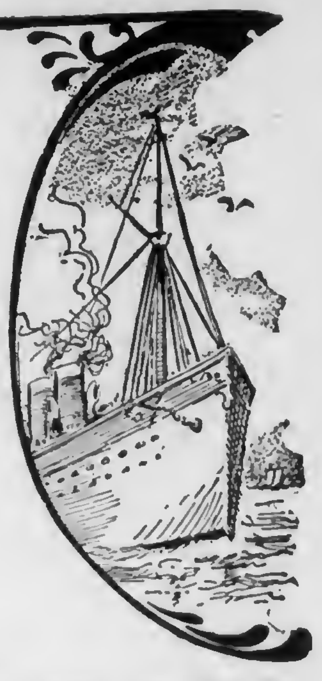

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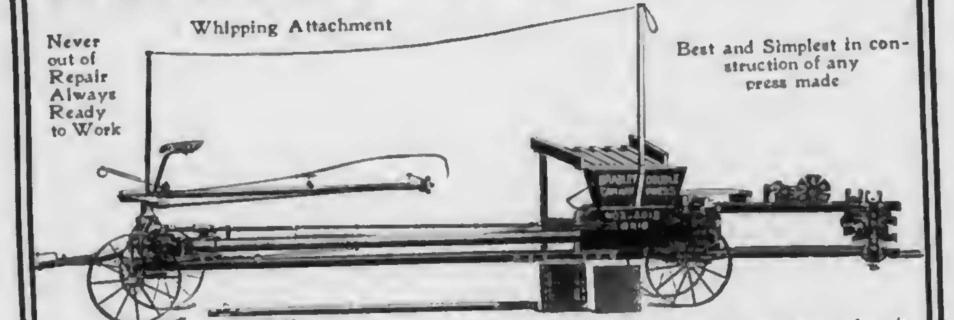

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Best and Simplest in construction of any press made

The David Bradley Baler has very high standing with the foreign trade. It does more than is claimed for it, and does perfect work under all conditions. Write for literature We answer correspondence in any language.

La Prensa "David Bradley" de doble excéntrica de acero para embalar Heno es bien
conocida en todo el mundo. Jamás se descompone, y está siempre lista para el trabajo.
Es la mejor, y su construcción es más sencilla que la ninguna otra prensa jamás fabri-
cada. Tiene un accesorio para zurrar. La Embaladora "David Bradley" ocupa una alta
posición en el comercio extranjero. Hace más de lo que se le atribuye, y su trabajo es
perfecto bajo todas las condiciones. Escribasenos pidiendo nuestros impresos. Con-
testamos la correspondencia en cualquier idioma.

La Presse à Foin—à double came de "David Bradley" est connue dans le monde entier.
Elle n'est jamais en réparations mais toujours au travail. Elle est la meilleure et la plus
simple dans sa construction comparée à toute autre presse manufacturée. Elle est munie
d'un secoueur à capuchon. La Presse à Foin "David Bradley" a déjà une grande réputa-
tion dans le commerce étranger. Elle parfait plus qu'elle ne prétend et accomplit son
travail sous toutes circonstances. Adressez-nous pour prospectus, circulaires, etc. Nous
répondons en toutes les langues.

Made by DAVID BRADLEY MFG. CO., . . BRADLEY, ILL., U. S. A.
Cable address, "YELDARB." Codes used: "A.B.C.," 4th and 5th editions, "A1," "Liebers" and "Our Own."

A Plow with Reversible Point and Wing

No. 95

and for this reason a plow that is a rapid seller

The farmer appreciates it because it is always ready with a fresh cutting edge. The upper edge is always being sharpened while the lower one is being used. The matter of reversing them is very quick and simple—no wrench being required, and there is no necessity for turning the plow over.

We highly recommend this Plow for Clay, Gravel, Stone or a Hard Pan Soil

For Further Particulars and Prices address
South Bend Chilled Plow Co. SOUTH BEND INDIANA

Lawn Mowers

FOR HORSE and HAND USE

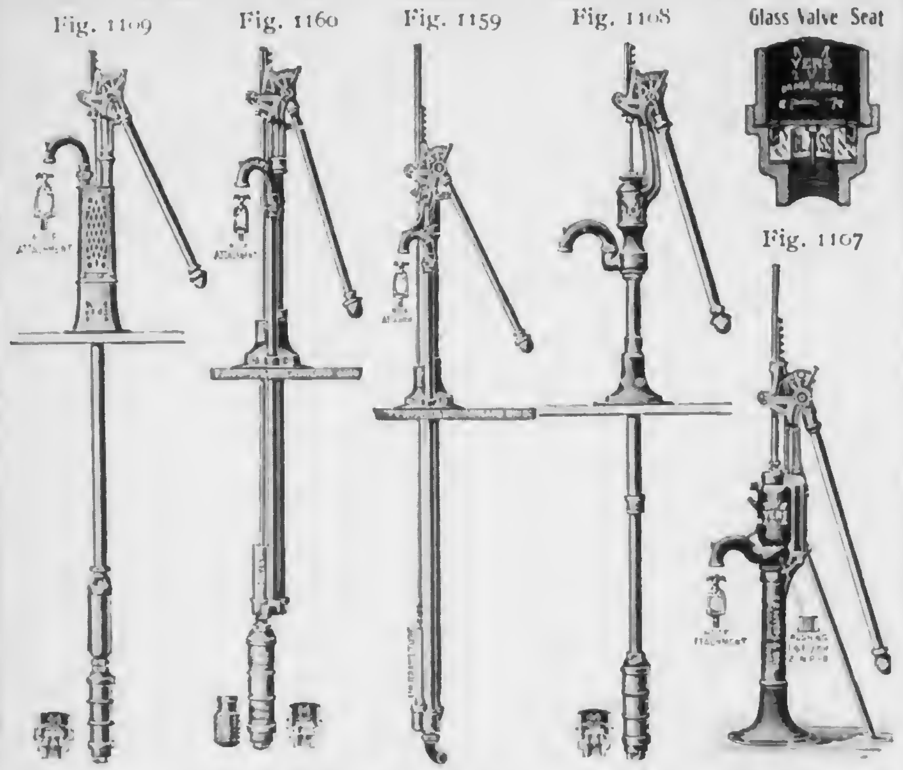
Adapted for all markets of the world.

Established 1870

CHADBORN & COLDWELL MFG. CO.
NEWBURGH
N. Y.
U. S. A.

SEND FOR CATALOGUE AND PRICES

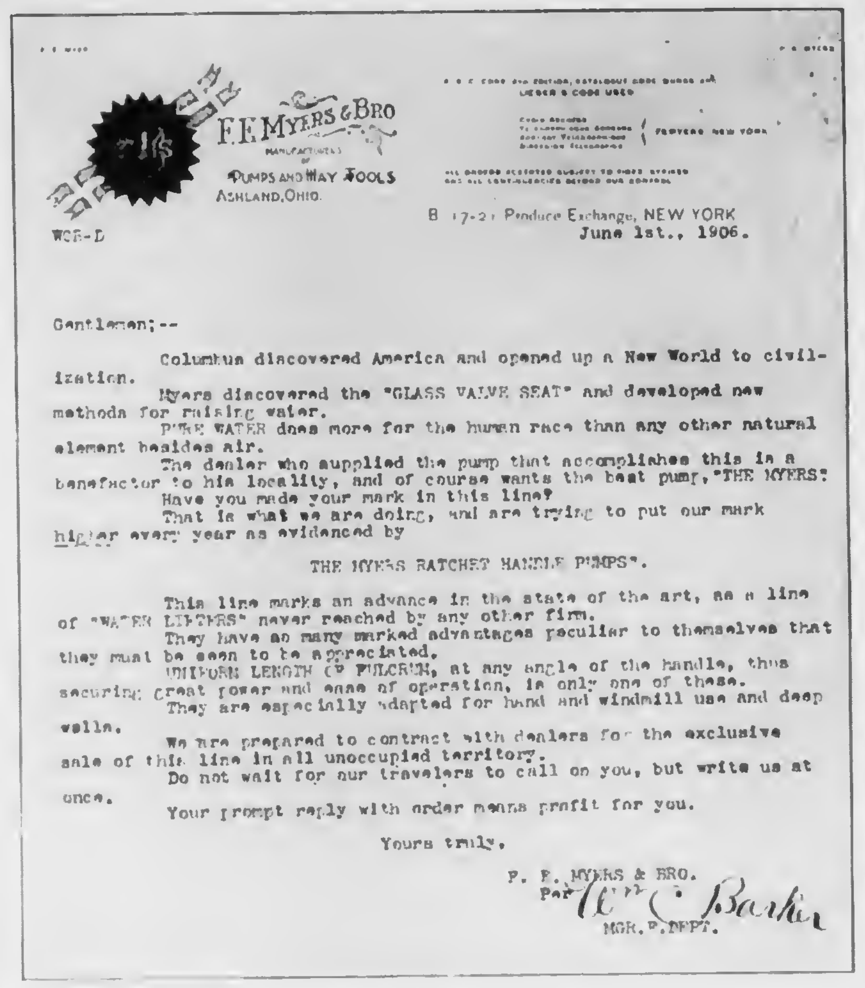
MYERS RATCHET HANDLE PUMPS



They are adapted for deep well use, or can be used with larger cylinder, pumping greater quantity of water for wells of the same depth, on which a smaller cylinder is used in connection with the ordinary pump.

F. E. MYERS & BRO. ASHLAND OHIO

7-06



F. E. MYERS & BRO.
MANUFACTURERS OF
PUMPS AND HAY TOOLS
ASHLAND, OHIO.

WCB-D

B 17-21 Produce Exchange, NEW YORK
June 1st., 1906.

Gentlemen;--

Columbus discovered America and opened up a New World to civilization.

Myers discovered the "GLASS VALVE SEAT" and developed new methods for raising water.

PURE WATER does more for the human race than any other natural element besides air.

The dealer who supplied the pump that accomplishes this is a benefactor to his locality, and of course wants the best pump, "THE MYERS"

Have you made your mark in this line?

That is what we are doing, and are trying to put our mark higher every year as evidenced by

THE MYERS RATCHET HANDLE PUMPS".

This line marks an advance in the state of the art, as a line of "WATER LIFTERS" never reached by any other firm.

They have so many marked advantages peculiar to themselves that they must be seen to be appreciated.

UNIFORM LENGTH OF FULCRUM, at any angle of the handle, thus securing great power and ease of operation, is only one of these.

They are especially adapted for hand and windmill use and deep wells.

We are prepared to contract with dealers for the exclusive sale of this line in all unoccupied territory.

Do not wait for our travelers to call on you, but write us at once.

Your prompt reply with order means profit for you.

Yours truly,

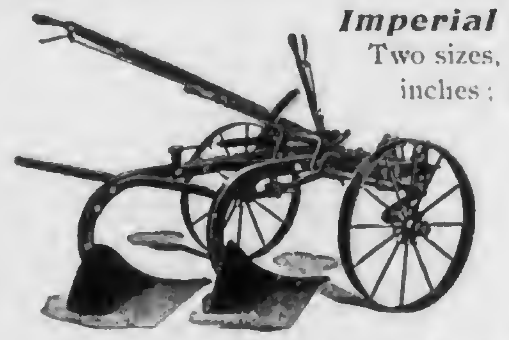
F. E. MYERS & BRO.
Per W. C. Barker
MGR. E. DEPT.

EXPORT OFFICE
B 21 Produce Exchange, New York, U. S. A.

IMPERIAL LINE IMPLEMENTS

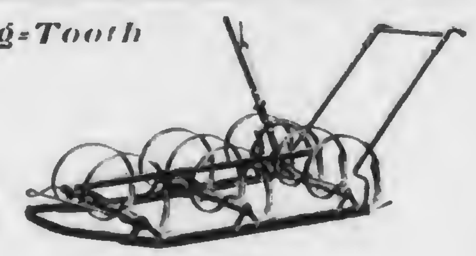
Imperial Stark Gang Plow
Two sizes, cutting 24 inches and 28 inches; all soft centre steel.

Specially constructed for export trade.

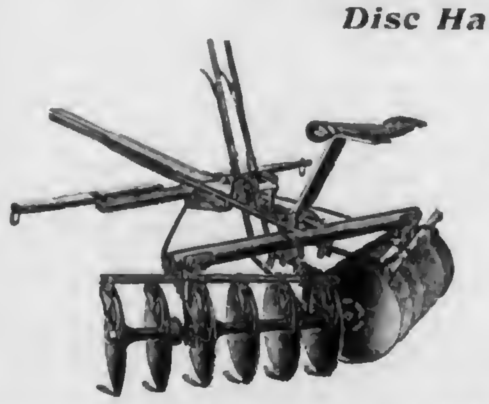


Imperial Spring-Tooth Cultivator

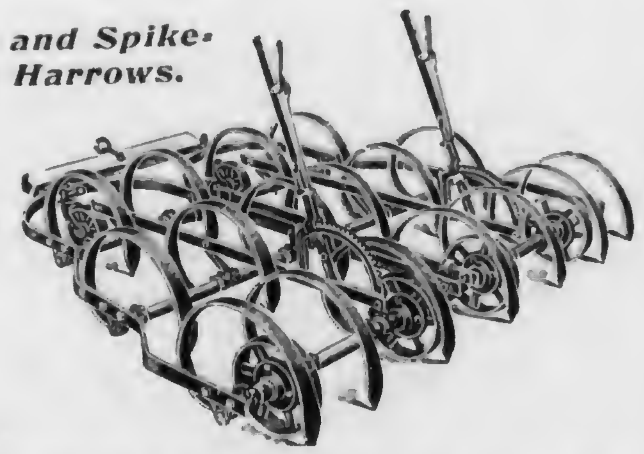
Specially designed for working in vineyards.



Solid and Cut-Out Disc Harrows.



Spring and Spike-Tooth Harrows.



Several sizes and styles.

Full Line Single and Double Furrow Plows, Cultivators, Etc.

CATALOGUE, No. 104 Free on Application.

THE BUCHER & GIBBS PLOW CO. B-21 Produce Exchange, NEW YORK, N. Y., U. S. A.
Factory: CANTON, OHIO.

Directory for Buyers.

The names of firms given below, together with the goods mentioned, are arranged for the convenience of buyers. Their products are given in the English, French, Spanish and German languages. These establishments are among the leading ones in the United States, are strictly reliable, have extensive facilities and are prompt in transacting business. They fully understand the export trade and carefully look after all foreign orders. The EXPORT IMPLEMENT AGE is kept on file in their offices, and any mention of the journal will be an incentive to even greater promptness on their part in obliging you. Inquiries from foreign buyers desiring information relative to American agricultural machinery or implements addressed to them will be given careful and prompt attention. Write in any language you prefer.

Rèpertoire à l'Usage des Acheteurs

Les maisons ci-dessous et les produits mentionnés ont été classés dans cet ordre pour la commodité des acheteurs de langues anglaise, française, espagnole et allemande. Ces établissements sont parmi les principaux des Etats-Unis, ils sont absolument sérieux, ils possèdent de grandes facilités, sont prompts en affaires. Ils connaissent à fond le cemmerce d'exportation et donnent tous leurs soins à l'exécution des commandes qui leur viennent de l'étranger. Ils conservent une collection de l'EXPORT IMPLEMENT AGE dans leurs bureaux, et la simple mention de ce journal stimulera davantage encore, si possible, leur zèle et leur promptitude à obliger leurs clients. L'EXPORT IMPLEMENT AGE, de son côté, donnera une prompte attention aux demandes de ronseignements sur machines et instruments agricoles américains, que peuvent lui adresser les acheteurs de l'étranger. Ecrire dans la langue que l'on préfere.

Directorio para los Compradores.

Los nombres de los artículos que fabrican las firmas ó casas mencionadas á continuación se dan, para conveniencia de los compradores, en los idiomas inglés, francés, español y alemán. Esos establecimientos, que se cuentan entre los principales de los Estados Unidos, están completamente acreditados, son dignos de toda confianza y tienen las mayores facilidades para ejecutar y despachar con prontitud todos sus negocios. Conocen á fondo el comercio de exportación y atienden con el mayor esmero à todos los pedidos que reciben del extranjero. Los números del EXPORT IMPLEMENT AGE se coleccionan en sus oficinas, y toda referencia á esta revista es un incentivo para atender con mayor prontitud aun á vuestros requerimientos. Todos los informes que pidan los compradores del extranjero serán suministrados á la mayor brevedad por esos fabricantes sobre la maquinaria agrícola é instrumentos de labranza americanos. Escribidles en cualquier idioma que prefiráis.

Firmen-Verzeichnis für Käufer.

Die Erzeugnisse der unten genannten Firmen sind für die Bequemlichkeit ausländischer Käufer in englischer, französischer spanischer und deutscher, Sprache hier wiedergegeben. Genannte Etablissemente gehören zu den bedeutendsten in den Vereinigten Staaten; sie sind in jeder Weise zuverlässig, besitzen ausgedehnte Facilitäten und erfreuen sich eines ehrenvollen Rufes. Alle von ihnen unternommenen Geschäftstransaktionen werden in promptester Weise zur Ausführung gebracht. Jedes hierin genannte Haus ist mit dem Exporthandel wohl vertraut und um auswärtige Aufträge eifrig bemüht. Das EXPORT IMPLEMENT AGE wird von all diesen Firmen gelesen, dient ihnen sozusagen als Informations-Register und dürfte somit eine Angabe dieses Journals bei event. Waarenbestellung nur zur Anregung grösserer Promptheit dienen, um p.p. Käufern in bestmöglicher Weise entgegenkommen zu können. Jede auswärtige Anfrage hinsichtlich amerikanischer landwirthschaftlicher Maschinen und Geräthe wird nicht allein prompte, sondern auch stets sorgfältige Aufmerksamkeit erhalten. Interessenten können sich jeder beliebigen Sprache zur Korrespondenz bedienen.

Ambulances
Carros de hospital
Krankenwägen (Ambulanzen)

Baling Presses (Hay, Straw, Etc.)
Presses à foin, paille, etc.
Prensas de Embalar (Heno, Paja, etc.)
Ballen Pressen (für Heu, Stroh, u. s. w.)

Bradley Mfg. Co., David, Bradley, Ill. 1
Collins Plow Co., Quincy, Ill. 29
Ertel Co., George, Quincy, Ill. 6

Beet Implements (Planting, Cultivating and Harvesting)
Betteraves (Instruments pour la culture des)
Instrumentos para el Cultivo de la Remolacha (Sembradoras, Cultivadoras y Cosechadoras)
Rübengeräte (zum Pflanzen, Pflügen und Ernten)

Moline Plow Co., Moline, Ill. 6

Binders, Self (Wheat, Rye, Oats, etc.)
Lieuses Automatiques (Blé, Orge, Avoine, etc.)
Agavilladoras Automáticas (Trigo, centeno avena, etc.)
Selbstbindemaschinen (für Weizen, Roggen, Hafer u. s. w.

Boilers.
Chaudières.
Calderas.
Kessel.

Leffel & Co., James, Springfield, Ohio 29

Bolts and Nuts.
Boulons et écrous.
Pernos y Tuercas.
Bolzen und Muttern (Mutterbolzen)

Columbus Bolt Works, Columbus, Ohio 36

Brakes (Vehicle)
Retrancas (Vehículo)
Frein (de Voiture)
Bremsen (für Fahrzeuge)

Potter Co., The Morgan, Fishkill on Hudson, N. Y. . . 8

Carriages
Voitures
Carruajes
Kaleschen und Wagen

Dapson & Wolf, Oneida, N. Y. 3
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Carriage Cloth
Wagentuch
Paño de carruaje
Drap de Voiture

Fairfield Rubber Co., The, Fairfield, Conn. 5

Carriage Materials
Articles pour voitures
Materials for Carriages
Wagenmaterial

Carts (Riding)
Charrettes (à siège)
Carretones (de Montar)
Frachtkarren (Reitkarren)

Dapson & Wolf, Oneida, N. Y. 3

Cider and Wine Presses
Pressoirs à vin et à cidre
Prensas para Hacer Cidra y Vino
Kelterapparate für Wein und Apfelwein

Lansing Wheelbarrow Co., Lansing, Mich. . . . . . .

Clothes Washing Machines
Linge (machines à laver le)
Máquinas de Savar Ropa
Wäsche Waschmaschinen

"1900" Washer Co., Binghamton, N. Y. 31

Coal Cars
Charbon (wagons pour)
Carros para Carbón de Piedra
Kohlenwaggons

Lansing Wheelbarrow Co., Lansing, Mich. 29

Coal Shutes
Charbon (Dalles à)
Canales para Descargar Carbón de Piedra
Kohlen Lade-Rinnen

Lansing Wheelbarrow Co., Lansing, Mich. 29

Corn Crushers
Mais (Concasseurs de)
Trituradoras de Maiz
Mais Zerquetschmaschinen

Sprout, Waldron & Co., Muncy, Pa. 3

Corn Harvesters
Mais (Moissonneuses de)
Cosechadoras de Maiz
Mais Erntemaschinen

Standard Harrow Co., Utica, N. Y. 3

Corn Huskers and Shredders
Mais (Instruments à enlever et à déchirer les bractées du)
Desgranadoras y Picadoras de Maiz
Mais Enthülsemaschinen und Auswerfapparate

Bradley Mfg. Co., David, Bradley, Ill. 1

Corn Planters (Hand)
Mais (Semoirs de, à main)
Sembradoras de Maiz (A Mano)
Maispflanzer (für Handbetrieb)

Ohio Cultivator Co., The, Bellevue, Ohio 31

Corn Planters (Horse)
Mais (Semoirs de, à cheval)
Sembradoras de Maiz (para Caballo)
Mais Pflanzmaschinen (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill. . . . .
Moline Plow Co., Moline, Ill. . . . .

Corn Shellers (Hand)
Mais (Egrenoirs de, à main)
Descascaradoras de Maiz (de Mano)
Mais Pflanzmaschinen (für Handbetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Corn Shellers (Power)
Mais (Egrenoirs de), á énergie mecanique
Descascaradoras de Maiz (para Fuerza mecánica)
Mais Pflanzmaschinen für Pferdebetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Cotton Planters
Coton (Semoirs de)
Sembradoras de Algodón
Baumwoll Pflanzmaschinen

Ohio Cultivator Co., The, Bellevue, Ohio	36

Cultivating Machinery (Hand and Garden)
Culture du sol (Intruments pour la), á main et pour le jardin
Maquinaria Cultivadora (de Mano y para Huerta)
Garten Pflüge (für Handbetrieb)

Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Cultivating Machinery (Horse and Field)
Culture du sol (Instruments pour la), à cheval et pour le champ
Maqninaria Cultivadora (de Caballo y para el Campo)
Bodenkultur Geräte (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill.	1
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Engines and Boilers (Stationary)
Machines à vapeur et Chaudières (fixes)
Màquinas de Vapor y Calderas (Fijas)
Maschinen und Kessel (Stationär)

Leffel & Co., James, Springfield, Ohio	29

Engines (Traction and Portable)
Machines à vapeur (Pour la traction et transportables)
Màquinas (De Tracción y Portátiles)
Traktions- oder Zugmaschinen und Lokomobilen

Feed and Ensilage Cutters
Coupe-aliments, coupe-ensilage
Cortadora de Forraje y Ensilaje
Futter- und Grünfutter (Ensilage) Schneidemaschinen

Marseilles Mfg. Co., Marseilles, Ill.	4
Silver Mfg. Co., Salem Ohio	35

Feed Mills
Moulins pour aliments
Molinos de Frorraje ó Pienso
Futtermühlen

Sprout, Waldron & Co., Muncy, Pa.	3

Files (Letter and Card)
Systèmes de classification (lettres et cartes)
Guarda-Cartas y Tarjetas
Skripturenordner (für Briefe und Karter)

Forgings (Carriage)
Pièces forgées (Voiture)
Forjaduras (para carruajes)
Schmiedereien (Kaleschen-)

Gardening Tools (Haud)
Jardinage (Outils de) à main.
Herramientas de Hortelano (de Mano)
Gärtnerei Handwerkzeug

Grain Cleaning Machinery (Rice, Coffee, Grain, Etc.)
Grains (Machines à nettoyer les): riz, café, grain, etc.
Maquinaria pare Limpiar Granos (Arroz, Café, Granos, Etc.)
Getreide Reinigungsmaschinen (für Reis, Kaffee, Korn, u. s. w.)

Sprout, Waldron & Co., Muncy, Pa.	5

Grain Drills
Grains (Semoirs de)
Sembradoras de Granos
Drillmaschinen

Monitor Drill Co., Minneapolis, Minn.	31
Superior Drill Co., Springfield, Ohio	5

Grain Grinding Mills
Grains (Moulins à moudre les)
Molinos para Granos
Schrotmühlen

Flint & Walling Mfg. Co., Kendallville, Ind.	3
Kelly Co., The O. S., Springfield, Ohio	36
Marseilles Mfg. Co., Marseilles, Ill.	4
Sprout, Waldron & Co., Muncy, Pa.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Hand Carts (Push)
Charrettes à bras
Carretillas de Mano (de Empuje)
Hand-Schiebekarren

Bradley Mfg. Co., David, Bradley, Ill.	1
Deming Co., The, Salem, Ohio	35
Lansing Wheelbarrow Co., Lansing, Mich.	29

Hand Tools (Shovels, Rakes, Hoes, Scythes, Forks, Etc.)
Outils à main (Pelles, râteaux, houes, faux, fourches, etc.)
Herramientas de Mano (Palas, Rastrillos, Azadones, Guadañas. Horquillas, etc.)
Handwerkzeug (Schaufeln, Rechen, Haken, Sensen, Gabeln, u. s. w.

Harrows (Disc, Spring-Tooth and Spike-Tooth)
Herses (à disques, à dents élastiques, à dents droites)
Mielgas ó Rastrillos (de Disco, con Dientes de Resorte y Otros)
Eggen (mit Scheiben-, Federzahn- und Speichenzahn-Vorrichtung)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	81
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Loaders
Foin (Chargeuses de)
Cargadoras de Heno
Heu Auflader

Marseilles Mfg. Co., Marseilles, Ill.	4

Hay Presses
Foin (Presses à)
Prensas para Heno
Heu Pressen

Bradley Mfg. Co., David, Bradley, Ill.	1
Collins Plow Co., Quincy, Ill.	29
Ertel Co., George, Quincy, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Rakes
Foin (Râteaux à)
Rastros para Heno
Heu Rechen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6

Hay Tools (For Handling Hay)
Foin (Outils pour la manipulation du)
Herramientas para Heno (para Manipular el **Heno**)
Heubearbeitungs-Apparate und Werkzeuge

Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	85

Hods (Steel and Wood)
Auges (Acier et bois)
Artesas de Cargar (de Acero y de Madera)
Tünchkübel (Mörteltröge, aus Stahl und Holz)

Lansing Wheelbarrow Co., Lansing, Mich.	29

Implement Parts (Rake, Teeth, Knife Sections, Etc.)
Pièces de rechange (Dents de râteaux, conteaux de faucheuses, etc.)
Partes de Instrumentos (Dientes de Rastrillo, Secciones de Cuchilla, Etc.)
Theile von Landwirthschaftsgeräthen (Rechenzähne, Messertheile, u. s. w.)

Incubators
Conveuses artificielles
Incubadoras
Brutmaschinen (Inkubatoren)

Ertel Co., George, Quincy, Ill.	6

Lawn Mowers
Tondeuses de gazon
Segadoras ó Cortadoras de Césped
Rasen Mähmaschinen

Clipper Lawn Mower Co., Dixon, Ill	5
Chadborn & Culdwell Mfg- Co., Newburgh, N. Y	1

Leather (Imitation)
Leder (Imitation)
Cuero (Imitación)
Cuir (Imitation)

Fairfield Rubber Co., The, Fairfield, Coon.	5

Machine Tools
Machines-outils
Herramientas Mecánicas
Maschinen-Werkzeug

Silver Mfg. Co., Salem, Ohio	35

Mowers.
Faucheuses.
Segadoras.
Mähmaschinen.

Mills (Corn and Hominy)
Moulins (pour maïs et bouilie)
Molinos (para Moler Maiz Fino y Grueso)
Mühlen (für Getreide und indianisches Reis, Hominy)

Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Oil Cloth
Toile Cirée
Wachstuch

Plows (Walking, Riding and Disc)
Charrues (ordinaires, à siège, à disques)
Arados (de Caminar, de Moutar y de Disco)
Pflüge (Geh-, Fahr- und Scheibenpflüge)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
South Bend Chilled Plow Works, South Bend, Ind.	1
Standard Harrow Co., Utica, N. Y.	3

Potato Machinery
Pòmmes de terre (Machines pour la culture des)
Maquinaria para Patatas
Kartoffel-Maschinen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Pumps, Hand and Power (Lift, Force and Spray)
Pompes, à main, et à énergie mécanique (Pompes aspirantes, foulantea, pulvérisatrices)
Bompas de Mano y para Fuerza Mecánica (Aspirantes, de Forzar y de Rociar)
Pumpen, Hand- und Kraftpumpen (Hebe-, Druck- und Besprengungs-Pumpen)

Deming Co., The, Salem, Ohio	35
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Reapers.
Moissonneuses.
Cosechadoras
Getreide-Mähmaschinen.

Rollers (Field or Road)
Rouleaux (pour champs et pour routes)
Rodillos (para Campo y para Caminos)
Feld- und Weg-Walzen

Bradley Mfg. Co., David, Bradley, Ill.	1
Lansing Wheelbarrow Co., Lansing, Mich.	29
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Rubber Goods
Articles de caoutchouc
Articulos de Caucho
Gummiwaaren

Rubber Tires
Gummireifen
Bandes de roues en caoutchouc
Llantas de Caucho para Ruedas

Morgan & Wright, Chicago, Ill.	1

Scrapers (Road)
Ratissoires (pour routes)
Dragas (para Caminos)
Strassen Scharr-Maschinen (Strassen-Ebener)

Standard Harrow Co., Utica, N. Y.	3

Seeders, Broadcast (Grain and Grass)
Semoirs pour semer à la volèe (Grain et graminèes)
Máquinas de Sembrar Semillas al Vuelo (**Granos** y Semilla de Yerbas)
Breitsämaschinen (für Getreide und Gras)

Sharpeners and Grinders
Machines à remoudre et à aiguiser
Afiladoras y Amoladoras
Schärfe- und Schleif-Apparate

Sleighs
Traineaux
Trineos
Schlitten

Dapson & Wolf, Oneida, N. Y.	

Sprayers and Nozzles
Instruments d'arrosage
Rociadoras y Boquereles
Besprengungs-Spritzen und Uebernasen

Deming Co., The, Salem, Ohio	35
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
Standard Harrow Co., Utica, N. Y.	3

Stalk Cutters
Coupe-chaume
Cortadoras de Tallos
Stengel Abschneider

Street Sprinklers
Arrosage des rues (Tonneaux pour l')
Regadoras de Calle
Strassen Bespreng-Wagen

Studebaker Bros. Mfg. Co., South Bend, Ind.	36

Sugar Cultivating Implements
Sucre (Instruments pour la culture de la canne à)
Instrumentos para el Cultivo Azucarero
Zucker-Anbau Geräthe

Threshing Machinery
Machines à battre
Maquinaria de Trillar
Dresch Maschinen

Tire Setters
Machines à fixer les bandes de roues
Máquinas de Poner Llantas
Maschinen zum Aufsetzen von Gummireifen

Standard Tire Setter Co., Keokuk, Iowa	36

Tread Powers (Horse, Dog, Sheep, Etc.)
Machines à utiliser l'énergie de la marche (Cheval, Chien, Mouton, etc.)
Motores de Pisada (para Caballo, Perro, **Carnero**, etc.)
Kraft-Tretmaschinen (Pferde, Hunde, **Schafe**, u. s. w.)

Trucks (Hand Warehouse)
Trucs (Emmagasinage à bras)
Carretillas de Mano para almacén
Transport Handwagen (für Waarenhäuser)

Lansing Wheelbarrow Co. Lansing, Mich.	29

Wagons (Business)
Charettes (d'affaires)
Carros (para negocios)
Wägen (Geschäftswägen)

Wagons and Buck-Wagons
Charrettes et charrettes à lessive
Carretones y Carretas
Wägen und Bockwägen

Ohio Valley Wagon Co., The, Marietta, Ohio	

Wagons and Carts (Farm)
Wagonnets et charrettes (Ferme)
Carretones y Carretas (para Hacienda)
Landwirthschaftliche Wagen und Karren

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Sarcloirs mécaniques
Desyerbadoras
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Well Tools and Drilling Machinery
Outils pour puits et machines à forer
Instrumentos para Abrir Pozos y Maquinaria para Horadar
Brunnen-Werkzeug und Bohr-Maschinen

Flint & Walling Mfg. Co., Kendallville, Ind.	3

Wheelbarrows
Brouettes
Carretillas
Schiebekarren

Lansing Wheelbarrow Co., Lansing, Mich.	29

Wheels (Carriage)
Roues (Voiture)
Ruedas (Carruaje)
Räder (Kaleschen und Wagen)

Wheels and Wheel Materials
Roues et articles pour roues
Ruedas y Materiales para Ruedas
Räder und Rädermaterialien

Windmills (Towers and Tanks)
Moulins à vent (Tours et réservoirs)
Molinos de Viento (Torres y Tanques)
Windmühlen (Thurm- und Bütten)

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Wood Sawing Machinery
Bois (Machines à scierie)
Maquinaria para Aserar Madera
Holzsäge-Maschinen

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Clipper Lawn Mower Co., Dixon, Ill	5
Collins Plow Co., Quincy, Ill.	2
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Machinery for Grinding all Kinds of Grain
Machines à moudre tous genres de grains
Maquinaria para moler todas glase de granos
Maschinerie zum Mahlen aller Getreidesorten

Write for one of our booklets which gives a full description of French Burr and Attrition, Feed and Meal Mills, Cotton Seed and Linseed Oil Cake Mills, Emery Rock Mills, Cotton, Ear and Ore Crushers, Magnetic Separators, Corn Shellers, etc.

Ecrivez pour un pamphlet contenant description détaillée de moulins à meules de France et à frottement, de moulins pour grains de cotton et de tourteaux de lin, de moulins à pierre d'émeri, de broyeurs d'épis et de minérais, de moulins magnétiques, d'écosseurs, etc.

Escríbasenos pidiendo uno de nuestros libritos, en que se da una completa descripción de nuestros Molinos de Piedra Francesa y de Roce, para Pienso y para Harina, Molinos de Semillas de Algodón, y para moler Tortas de Aceite de Semillas de Linaza, Molinos para Roca de Esmeril, Trituradoras de Algodón, Mazorcas y Minerales, Separedoras Magnéticas, Desgranadoras de Maiz, etc.

Man verlange eines unserer Büchlein, das volle Beschreibung unserer französischen Mahlsteine und Reibevorrichtung enthält, wie auch aller Futter-Vorrichtungen, Mehl-Mühlen, Baumwollensaamen- und Leinölsaamen Kuchen-Mühlen, Schmirgel-Bergmühlen, Baumwollen-, Aehren- und Erzzerstückelungs-Maschinen, magnetische Separatoren, Korn-Enthülsemaschinen, u. s. w.

SPROUT, WALDRON & CO.

Drawer M. MUNCY, PA., U. S. A.

The Standard Harrow Co.

UTICA, N. Y., U. S. A.

ABERDEEN, SR. SPRING-TOOTH HARROW

Unequalled Strength
No Clogging
Reversible Points on Teeth

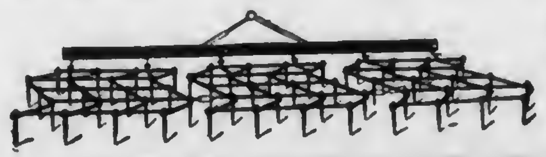
THE STANDARD LINE includes one and two-section Spring-Tooth Harrows and all styles and sizes of Spike-tooth and Disc Harrows, Cultivating Implements, Potato Harvesters, Potato Sprayers, etc., and is one of the most favorably known lines in the leading agricultural countries.

We guarantee prompt service for all export orders. Our factory is only five hours' ride from New York City.

WRITE IN YOUR OWN LANGUAGE FOR CATALOGUE F

ZIG ZAG STEEL SPIKE-TOOTH HARROW

20-Tooth Sections
½-inch Teeth



EASY RIDING

This two-wheeler is our leading specialty for export.

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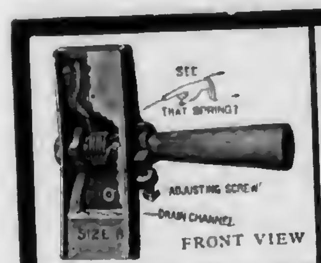
LET US SEND YOU THE PRICES

Dapson & Wolf
ONEIDA, NEW YORK, U. S. A.
WHOLESALE MAKERS OF
FINE CARRIAGES



POTTER'S SPRING BRAKE BLOCKS . . .

Very substantial. Over 25,000 sets in use throughout the United States. We make them for Steel Tires, and they are especially adapted for Rubber Tires.

Will Not Injure Rubber Tire a Particle

We solicit your correspondence

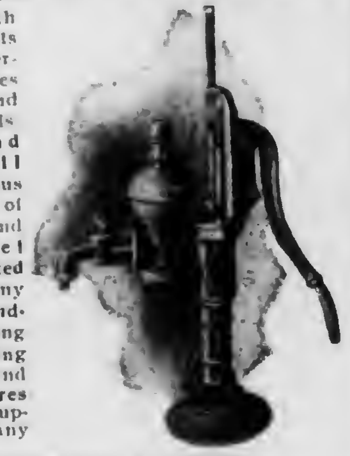
The Morgan Potter Company
FISHKILL - ON - HUDSON, N. Y., U. S. A.

A Windmill that does satisfactory work naturally is the one you want. The "STAR' is the one that pleases. Our booklets in English, German, French and Spanish tell all about

"STAR" WINDMILLS

designed for the heavy and varied work required of them abroad. The "STAR" is built in all sizes, thoroughly galvanized, has ball bearings and is the easiest running Mill made.

"STAR" PUMPING MILL



For many years we have been exporting Windmills and know what is needed to meet all requirements and please our foreign friends. We understand how these goods should be packed for safe delivery, and the packing receives our most careful attention. With all the required parts at hand and properly fitted it facilitates the assembling and erecting of the Mills

We build **Hand and Windmill Pumps** of various designs, all sizes of **Pine, Cypress** and **Galvanized Steel Tanks, Galvanized Steel Towers** any height. **Power Windmills** for grinding feed and running light machinery and **Steel Substructures** all heights, to support Tanks of any capacity.

CORRESPONDENCE INVITED

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New York Office, 96 Wall Street, New York, U. S. A.

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Wägen (Geschäftswägen)

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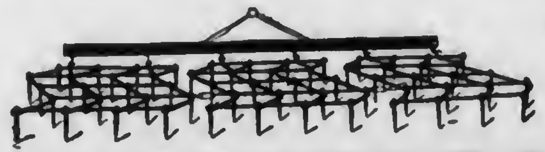

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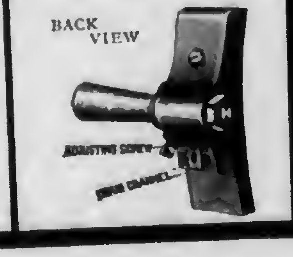

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INTENTIONAL SECOND EXPOSURE

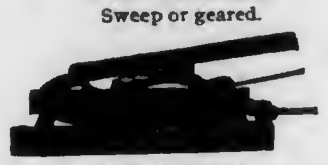
WOOD SAWS.
Steel or wood frames.

TWO HOLE HAND CORN SHELLER.

FEED GRINDERS
Sweep or geared.

HAND SHELLER

FARM FANNING MILLS.



HORSE POWERS.
1 to 12-horse.

SPEED JACKS.

NEW PROCESS DUSTLESS CYLINDER CORN SHELLER
For busked or unhusked corn, made in three sizes, capacities ranging from 400 to 1,200 bushels per hour.

CYCLONE COMBINATION FORCE FEED CORN SHELLER
All sizes and styles for horse power or engine.

PUMPING JACKS

Address **MARSEILLES MF'G. CO. MARSEILLES, ILL. U.S.A.** CABLE ADDRESS { A.B.C. Code "ADAMS MARSEILLES" Western Union Code "ADAMS"

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AMERICAN manufactures are not only in demand, but in many cases are given the preference in foreign countries. Especially is this true of Agricultural Machinery, Farm Supplies, Vehicles and Hardware Specialties. If you are manufacturing any of these goods voice it abroad and make the world your field. You can do it just as easily as you can secure home trade if you'll talk through the

Export Implement Age

IT REACHES ALL FOREIGN COUNTRIES
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Made in a large variety of sizes in Plain Grain and combined Grain and Fertilizer, with Disc, Hoe and Shoe furrow openers

Semoirs Supérieurs de Grains. Manufacturés en une grande variété de dimensions pour Grains seulement ou pour Grains et Fertilisants mélangés, avec Disque, Houe et Soc creusant les sillons. Nous manufacturons des modèles spéciaux de Semoirs de Grains pour l'Europe, l'Australie, l'Amerique du Sud et le Sud de l'Afrique. Demandez les Catalogues descriptifs illustres.

Sembradoras Superiores de Granos. Se fabrican de muchos tamaños de sembrar Granos sóla ó combinada con Fertilizador, con surcadores de Disco, de Azadón ó Zapatillas. Nosotros fabricamos Sembradoras de tipos especiales para Europa. Australia, Sud América y el Africa del Sur. Envíese por un Catálogo descriptivo ilustrado.

"Superior" Getreiderillen. Wird in vielseitiger Auswahl von Grössen hergestellt: Einfache Getreiderillen und Kombinationen von Getreide und Pflugrillen mit Scheiben, Hauen und Schuh-Lockerungs Vorrichtungen. Wir fabriziren besondere Arten von Getreiderillen für Europa, Australien, Süd-Amerika und Süd-Afrika. Man verlange illustrirte beschreibende Kataloge.

We manufacture special types of Grain Drills for Europe, Australia, South America and South Africa

THE SUPERIOR DRILL CO., Springfield, O., U.S.A.

THE FAIRFIELD RUBBER CO.

Manufacturers of

Carriage Cloth, Imitation Leather, Etc.

FAIRFIELD, CONN., U. S. A.

We believe you will find our cloths more desirable fabrics than have been presented for your consideration.

Not only do we offer our lines as superior to any, but some are special with us.

We warrant all our goods in every manner, and in all climates.

All we ask is a trial of our productions, as we know the result will be in our favor.

Our many years' connection with the foreign trade places us in a position to know fully as to their wants, and the large orders we receive from that field convinces us that the high standard at which we have kept our goods is appreciated. We refer with pleasure to any leading Export house in New York as to the merit of our cloths.

Send for quotations through any Export house, or write us direct.

When ordering goods in our line, ask for goods made by

The Fairfield Rubber Co.

The Export Implement Age

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THE MOWER that will **kill all the Weeds in your Lawns.** If you keep the weeds cut so they do not go to seed, and cut your grass without breaking the small feeders of roots, the grass will become thick and the weeds will disappear.

THE CLIPPER WILL DO IT

Ask Your Dealer for Them

Black Hawk Mill

Wgt 17 Lbs.

GRINDS
Corn, Wheat, Rye, Rice, Coffee, Spices, Etc.

Instantly Adjusted to Grind Fine or Coarse.

WILL DO GOOD WORK AND LAST

Grinding Plates are of the Hardest and Strongest Metals. Can be replaced at slight cost.

Packed in barrels of 12 each. Gross weight, 240 lbs.; net, 204 lbs. Measurement 6⅓ cubic feet.

A. H. PATCH, Sole Maker,
Clarksville, Tenn., U. S. A.

Order through any Reliable Commission House.

PATCH'S PATENT

Black Hawk Corn Sheller

Wgt. 15 lbs.

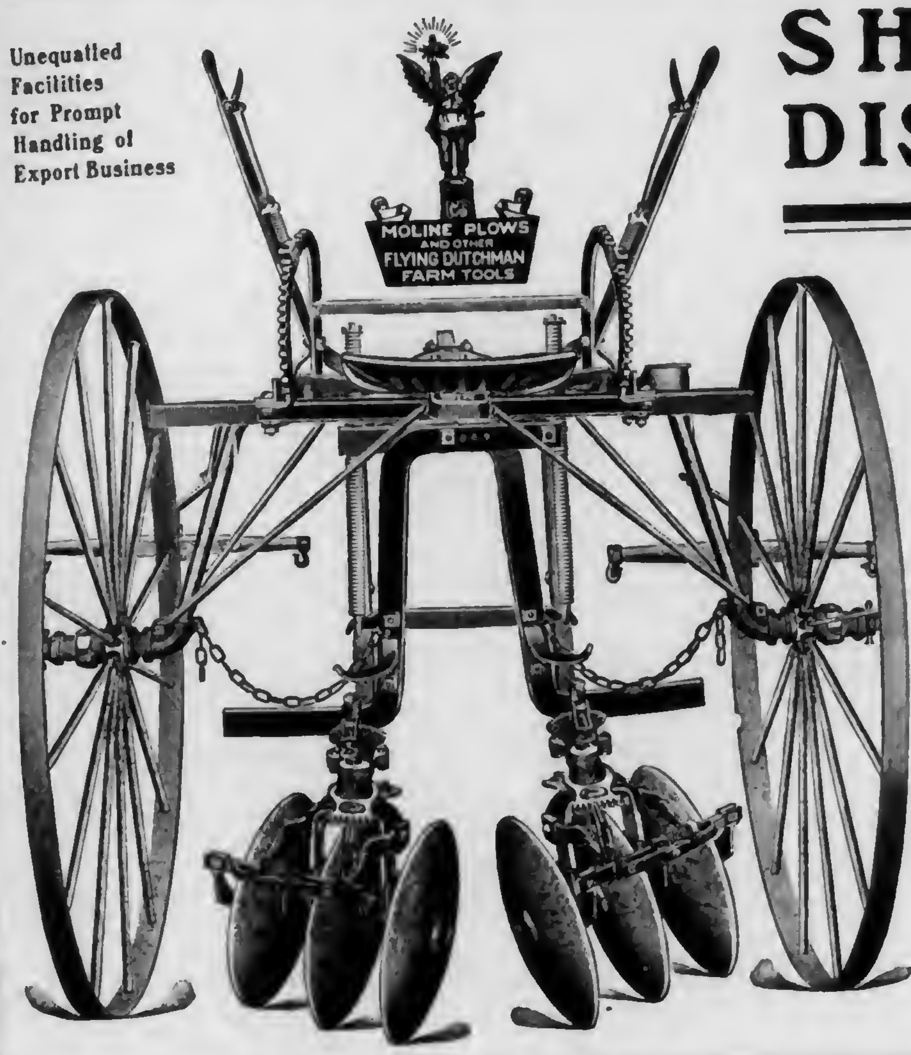
SHELLS FAST.
SHELLS CLEAN.
SHELLS EASILY.

Beware of Imitations

Capacity 8 to 12 bushels ear corn per hour.

Packed 10 in a barrel. Gross, 180 lbs.; Net, 150 lbs. Measurement 6⅓ cubic feet.

MADE ONLY BY
A. H. PATCH, CLARKSVILLE, TENN., U. S. A.



Unequalled Facilities for Prompt Handling of Export Business

SHANGHAI KIDD DISC CULTIVATOR

Forty-six inches from lowest point of arch to the ground. Adjustable in width from 48 to 72 inches. Popular for cultivating Corn, Cane, Tobacco, etc. Packed for export, weighs 830 pounds. Occupies 25 cubic feet of space.

STALK CUTTERS, WALKING AND RIDING PLOWS, DISC PLOWS, DISC HARROWS, PIPE-LEVER HARROWS, CORN PLANTERS AND DRILLS, LISTERS, COTTON PLANTERS, CULTIVATORS—BEET SEEDERS, CULTIVATORS and PULLERS

MOLINE PLOW CO.

MOLINE, ILL., U. S. A.

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Sole Agents for Argentine
Buenos Ayres, South America

MALCOMESS & CO.
Sole Agents for South Africa
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FRONT VIEW
VUE DE FACE
VISTA DEL FRENTE
VORDERANSICHT

37 YEARS building hay, straw, wool, cotton and corn fodder presses should certainly make us experts, and we claim that our presses are the simplest, easiest draught on the team and the smoothest balers on the market to-day.
Our presses will bale from 10 to 18 tons a day in hay.
Our presses will bale from 10 to 15 tons a day in straw.

Depuis 37 années que nous construisons des presses à foin, à paille, à laine, à coton, à fourrage de maïs, nous avons indubitablement acquis une expérience qui a fait de nous des experts, et nous n'hésitons pas à dire que nos presses sont les plus simples qui soient aujourd'hui sur le marché et celles qui fatiguent le moins l'attelage et fonctionnent le plus aisément.
Nos presses emballottent de 10 à 18 tonnes de foin par jour.
Nos presses emballottent de 10 à 15 tonnes de paille par jour.

Despues de 37 años que construimos prensas para heno, paja, lana, algodón y forraje de maiz tenemos que ser expertos en ese ramo, y por lo tanto reclamamos que nuestras prensas son las más simples y las más livianas para el acarreo por parejas de caballos, y las enfardadadoras mejores que existen hoy en el mercado.
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Presse 16 x 18	2,775 (1,526 kilos)	3,800	171 pieds cubes	218.00 (£45. 8. 4)
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	Peso Bruto.	Neto.	Espacio.	Precio.
Prensa 14 x 18	2,650 (1,457 Kilos)	3,700	115 piés cúbicos	$215.25 (£44.16.10)
Prensa 16 x 18	2,775 (1,526 Kilos)	3,800	171 piés cúbicos	218.00 (£45. 8. 4)
Prensa 17 x 22	2,975 (1,636 Kilos)	4,000	120 piés cúbicos	221.50 (£46. 3. 0)

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Preise unserer Vollzirkel Emballage-Pressen, frei Board New York, fertig für den Exportversand verpackt:

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14 x 18 Presse	2,650 (1,457 Kilo)	3,700	115 Kubikfuss	$215.25 (£44.16.10)
16 x 18 Presse	2,775 (1,526 Kilo)	3,800	171 Kubikfuss	218.00 (£45. 8. 4)
17 x 22 Presse	2,975 (1,636 Kilo)	4,000	120 Kubikfuss	221.50 (£46. 3. 0)

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INTERNATIONAL RESPONSIBILITIES

Address by MR. WILLIAM JENNINGS BRYAN, at the Independence Day Banquet of the American Society of London, July 4, 1906.

The memory of the evening spent with the American Society, Thanksgiving Day, two and a half years ago, is such a pleasant one that I esteem myself fortunate to be able to accept the invitation so kindly extended by our distinguished ambassador, the Hon. Whitelaw Reid, to be your guest on this occasion. Our English friends, under whose flag we meet to-night, recalling that this is the anniversary of our nation's birth, would doubtless pardon us if our rejoicing contained something of self-congratulation, for it is at such times as this that we are wont to review those national achievements which have given to the United States its prominence among the nations.

But I hope I shall not be thought lacking in patriotic spirit if, instead of drawing a picture of the past, bright with heroic deeds and unparalleled in progress, I summon you rather to a serious consideration of the responsibility resting upon those nations which aspire to premiership. This line of thought is suggested by a sense of propriety as well as by recent experiences—by a sense of propriety because such a subject will interest the Briton as well as the American, and by recent experiences, because they have impressed me not less with our national duty, than with the superiority of Western over Eastern civilization.

Asking your attention to such a theme, it is not unfitting to adopt a phrase coined by a poet to whom America as well as England can lay some claim, and take for my text "The White Man's Burden."

> Take up the White Man's burden—
>   In patience to abide,
> To veil the threat of terror
>   And check the show of pride;
> By open speech and simple,
>   An hundred times made plain,
> To seek another's profit
>   And work another's gain.

Thus sings Kipling, and with the exception of the third line (of the meaning of which I am not quite sure), the stanza embodies the thought which is uppermost in my mind to-night. No one can travel among the dark-skinned races of the Orient without feeling that the white man occupies an especially favored position among the children of men, and the recognition of this fact is accompanied by the conviction that there is a duty inseparably connected with the advantages enjoyed.

There is a white man's burden—a burden which the white man should not shirk even if he could, a burden which he could not shirk even if he would. That no one liveth unto himself or dieth unto himself, has a national as well as an individual application. Our destinies are so interwoven that each exerts an influence directly or indirectly upon all others.

Sometimes this influence is unconsciously exerted, as when, for instance, the good or bad precedent set by one nation in dealing with its own affairs is followed by some other nation. Sometimes the influence is incidentally exerted as when, for example, a nation, in the extension of its commerce, introduces its language and enlarges the horizon of the people with whom it trades.

This incidental benefit conferred by the opening of new markets must be apparent to any one who has watched the stimulating influence of the new ideas which have been introduced into Asia and Africa through the medium of the English language. This is not the mother tongue of very many of the world's leaders in religion, statesmanship, science and literature, but it has received through translation the best that has been written and spoken in other countries.

He who learns this language, therefore, is like one who lives upon a great highway where he comes into daily contact with the world. Without disparaging other modern languages, it may be said with truth that, whether one travels abroad or studies at home, there is no other language so useful at the present time as that which we employ at this banquet board, and the nation which is instrumental in spreading this language confers an inestimable boon, even though the conferring of it be not included in its general purpose. England has rendered this service to the people of India, and the United States is rendering the same service to the people of the Philippines, while both England and the United States have been helpful to Japan and China in this way.

But the advanced nations cannot content themselves with the conferring of incidental benefits; if they would justify their leadership, they must put forth conscious and constant effort for the promotion of the welfare of the nations which lag behind. Incidental benefits may follow, even though the real purpose of a nation is a wholly selfish one, for as the sale of Joseph into Egypt resulted in blessings to his family and to the land of the Pharaohs, so captives taken in war have sometimes spread civilization, and blacks carried away into slavery have been improved by contact with the whites.

But nations cannot afford to do evil, in the hope that Providence will transmute the evil into good and bring blessings out of sin. Nations, if they would be great in the better sense of the term, must intend benefit as well as confer it, they must plan advantage, and not leave the results to chance.

I take it for granted that our duty to the so-called inferior races is not discharged by merely feeding them in times of famine, or by contributing to their temporary support when some other calamity overtakes them. A much greater assistance is rendered them when they are led to a more elevated plane of thought and activity by ideals which stimulate them to self-development. The improvement of the people themselves should be the paramount object in all intercourse with the Orient.

Among the blessings which the Christian nations are at this time able—and in duty bound—to carry to the rest of the world, I may mention five—education, knowledge of the science of government, arbitration as a substitute for war, appreciation of the dignity of labor, and a high conception of life.

Education comes first, and in nothing have the United States and England been more clearly helpful than in the advocacy of universal education. If the designs of God are disclosed by his handiwork, then the creation of the human mind is undubitable proof that the Almighty never intended that learning should be monopolized by a few, and he arrays himself against the plans of Jehovah who would deny intellectual training to any part of the human race. It is a false civilization, not a true one, that countenances the permanent separation of society into two distinct classes—the one encouraged to improve the mind, and the other condemned to hopeless ignorance.

Equally false is that conception of international politics which would make the prosperity of one nation depend upon the exploitation of another. While no one is far-sighted enough to estimate with accuracy the remote, or even the immediate consequences of human action, yet as we can rely upon the principle that each individual profits rather than loses by the progress and prosperity of his neighbors, so we cannot doubt that it is to the advantage of each nation that every other nation shall make the largest possible use of its own resources and the capabilities of its people.

No one questions that Japan's influence has been a beneficent one since she has emerged from illiteracy and endowed her people with public schools open to all her boys and girls. The transition from a position of obscurity into a world power was scarcely more rapid than her transition from a menace into an ally. China is entering upon a similar experience, and I am confident that her era of reform will make her not a yellow peril, but a powerful colaborer in the international vineyard. In India, in the Philippines, in Egypt, and even in Turkey, statistics show a gradual extension of education, and I trust I will be pardoned if I say that neither the armies, nor the navies, nor yet the commerce of our nations, have given us so just a claim to the gratitude of the people of Asia as have our school teachers, sent, many of them, by private rather than by public funds.

The English language has become the vehicle for the conveyance of governmental truth even more than for the spread of general information, for beginning with Magna Charta, and continuing through the era of the American revolution and the Declaration of Independence down to the present, no language has been so much employed for the propagation of that theory of government which traces governmental authority to the consent of the governed.

Our own nation presents the most illustrious example known to history of a great population working out its destiny through laws of its own making and under officials of its own choosing, although, I may add, we scarcely go beyond England in recognizing the omnipotence of a parliament fresh from the people. It is difficult to overestimate the potency of this conception of government upon the progress of a nation, and in turning the thought of the world away from despotism to the possibilities of self-government, the pioneers of freedom made Western civilization possible.

An idea will sometimes revolutionize an individual, a community, a state, a nation, or even a world, and the idea that man possesses inalienable rights which the state did not give and which the state, though it can deny, cannot take away, has made millions of human beings stand erect and claim their God-given inheritance. While the era of constitutional liberty is ever widening, while the tyranny and insolence of arbitrary power are every year decreasing, the leaders of the world's thought, not only the English-speaking nations, but the other Christian nations as well, have yet much to do in teaching reverence for the will of the majority and respect for the public servants upon whom the people bestow authority.

The Christian nations must lead the movement for the promotion of peace, not only because they are enlisted under the banner of the Prince of Peace, but also because they have attained such a degree of intelligence that they can no longer take pride in a purely physical victory.

The belief that moral questions can be settled by the shedding of human blood is a relic of barbarism; to doubt the dynamic power of righteousness is infidelity to truth itself. That nation which is unwilling to trust its cause to the universal conscience, or which shrinks from the presentation of its claims before a tribunal where reason holds sway, betrays a lack of faith in the soundness of its position.

Our country has reason to congratulate itself upon the success of President Roosevelt in hastening peace between Russia and Japan. Through him our nation won a moral victory more glorious than a victory in war. King Edward has also shown himself a promoter of arbitration, and a large number of members of Parliament are enlisted in the same work. It means much that the two great English-speaking nations are thus arrayed on the side of peace.

I venture to suggest that the world's peace would be greatly promoted by an agreement among the leading nations that no declaration of war should be made until the submission of the question in controversy to an impartial court for investigation, each nation reserving the right to accept or reject the decision. The preliminary investigation would, in almost every instance, insure an amicable settlement, and the reserved rights would be a sufficient protection against any possible injustice.

Let me go a step farther, and appeal for a clearer recognition of the dignity of labor. The odium which rests upon the work of the hand has exerted a baneful influence the world around. The theory that idleness is more honorable than toil—that it is more respectable to consume what others have produced than to be a producer of wealth—has not only robbed society of an enormous sum, but it has created an almost impassable gulf between the leisure classes and those who support them. Tolstoy is right in asserting that most of the perplexing problems of society grow out of the lack of sympathy between man and man. Because some imagine themselves above work, while others see before them nothing but a life of drudgery, there is constant warring and much of bitterness.

When men and women become ashamed of doing nothing, and strive to give society full compensation for all they receive from society, there will be harmony between the classes.

While Europe and America have advanced far beyond the Orient in placing a proper estimate upon those who work, even our nations have not yet fully learned the lesson that employment at some useful avocation is essential to the physical health, intellectual development and moral growth. If America and England are to meet the requirements of their high positions, they must be prepared to present in the lives of their citizens examples, increasing in number, of men and women who find delight in contributing to the welfare of their fellows, and this ought not to be difficult, for every department of human activity has a fascination of its own. The agricultural colleges and industrial schools, which have sprung up in so many localities, are evidence that a higher ideal is spreading among the people.

And now we come to the most important need of the Orient—a conception of life which recognizes individual responsibility to God, teaches the brotherhood of man, and measures greatness by the service rendered. The first establishes a rational relation between the creature and his Creator; the second lays the foundation for justice between man and his fellows, and the third furnishes an ambition large enough to fill each life with noble effort. No service which we can render to the less favored nations can compare in value to this service, for if we can but bring their people to accept such an ideal, they will rival the Occident in their contribution to civilization. If this ideal—which must be accepted as the true one if religion is true—had been more perfectly illustrated in the lives of Christians and in the conduct of Christian nations, there would now be less of the "white man's burden."

If it is legitimate to "seek another's profit" and "to work another's gain," how can this service best be rendered? This has been the disputed point. Individuals and nations have differed less about the purpose to be accomplished than about the methods to be employed. Persecutions have been carried on avowedly for the benefit of the persecuted, wars have been waged for the alleged improvement of those attacked, and still more frequently, philanthropy has been adulterated with selfish interest. If the superior nations have a mission, it is not to wound, but to heal—not to cast down, but to lift up; and the means must be an example—a far more powerful and enduring means than violence. Example may be likened to the sun whose genial rays constantly coax the buried seed into life and clothe the earth, first with verdure and afterward with ripened grain, while violence is the occasional tempest which can ruin, but cannot give life.

Can we doubt the efficacy of example, in the light of history? There has been great increase in education during the last century, and the school-houses have not been opened by the bayonet. They owe their existence largely to the moral influence which neighboring nations exert upon each other. And the spread of popular government during the same period, how rapid! Constitution after constitution has been adopted, and limitation after limitation has been placed upon arbitrary power until Russia, yielding to public opinion, establishes a legislative body, and China sends commissioners abroad with a view to inviting the people to share the responsibility of government.

While in America and Europe there is much to be corrected, and abundant room for improvement, there has never been so much altruism in the world as there is to-day—never so many who acknowledge the undissoluble tie that binds each to every other member of the race. I have felt more pride in my own countrymen than ever before as I have visited the circuit of schools, hospitals and churches which American money has built around the world. The example of the Christian nations, though but feebly reflecting the light of the Master, is gradually reforming society.

Society has passed through a period of aggrandizement, the nations taking what they had the strength to take, and holding what they had the power to hold. But we are already entering a second era—an era in which the nations discuss not merely what they can do, but what they should do, considering justice to be more important than physical prowess. In tribunals like that of The Hague, the chosen representatives of the nations weigh questions of right and wrong, and give a small nation an equal hearing with a great, and a decree according to conscience. This marks an immeasurable advance. But is another step yet to be taken? Justice, after all, is cold and pulseless, a negative virtue.

The world needs something warmer, more generous. Harmlessness is better than harmfulness. But positive helpfulness is vastly superior to harmlessness, and we still have before us a larger, higher destiny of service. Even now there are signs of the approach of this third era, not so much in the actions of governments as in the growing tendency of men and women in many lands to contribute their means, in some cases their lives, to the intellectual, moral awakening of those who sit in darkness. Nowhere are these signs more abundant than in our own beloved land. Before the sun sets on one of these new centers of civilization, it arises upon another.

On the walls of the temple of Karnak an ancient artist carved the likeness of an Egyptian king, represented as holding a group of captives by the hair, and in the other hand is raised a club with which to strike the captives. What king would be willing to confess himself so cruel to-day? In some of the capitals of Europe are monuments built and ornamented with cannon taken in war. This form of boasting, once popular, is still tolerated, though in time it must give way to some emblem of victory less suggestive of slaughter.

As we are gathered to-night in England's capital, permit me to conclude with a sentiment suggested by a piece of statuary at Windsor castle. It represents Queen Victoria beside her consort. One of his arms is about her and the other points upward. The sculptor told in marble an eloquent story of strength coupled with tenderness, love rewarded by trust, sorrow brightened by hope. He told the story so plainly that it was hardly necessary to chisel the words:

"Allured to brighter worlds and led the way."

It was a beautiful conception, more beautiful than that which gave the world the Greek Slave, the Dying Gladiator, or the Goddess Athene. It embodies the idea which, with the expanding feeling of comradeship, makes applicable the association of nations as well as the relations of husband and wife. Let us indulge in the hope that our nation may so measure up to its great opportunities and so bear its share in the white man's burden as to earn the right to symbolize its progress by a similar figure. If it has been allured by Providence to a higher ground, may it lead the way in winning the confidence of those who follow it, and in exhibiting the spirit of him who said: "If I am lifted up, I will draw all men unto me."

MODERN MILK SUPPLY

It takes two hundred thousand cows to supply New York City with milk and cream, and other cities in about the same proportion to population. If it were necessary to deliver this quantity in wagons, bread and milk would be a greater luxury than terrapin in all large cities. But the milk-train and the refrigerating process bring city and country into surprisingly close relations. Every New England state pours milk into Boston. Each day, trains start from points in Maine, New Hampshire and Vermont, more than one hundred miles away. Philadelphia's milk-routes radiate for distances nearly as great in all directions, like the spokes of a wheel—obviously not a water-wheel. And Chicago draws on the great dairy states of the middle West. New York, with its enormous population, receives milk from close to the shores of Lake Ontario and the river St. Lawrence; certain of these routes are nearly four hundred miles long. Parts of New Jersey and Pennsylvania also contribute. Maps of the watershed of great areas appear in the geographies. The "milkshed," or the directions in which streams of milk flow to the consuming centers, is hardly less definitely established. Milk-trains run on passenger schedules, often in connection with passenger cars. Their receipts are carried, on most railroad accounts, as passenger earnings. Strong locomotives are required to move milk-trains, for they must be on time. A milk-train stalled in a snow-drift means suffering for city children. The world wants milk with great regularity; it is hard to explain to babies its absence, or to make them take substitutes good-naturedly.

WORKING MODEL OF TRACTION ENGINE BUILT BY AMATEUR

We quote the following, by S. M. Coffman, Brayner, Mo., in a recent issue of *Popular Mechanics*.

Back of my jewelry store and optical parlor, in the city of Brayner, Mo., I have fitted up a little factory where every evening I spend a couple of hours in manufacturing horological tools of my own invention and doing model work. Here I built my complete working model of a traction engine, which in every detail is like the big 12 horse-power engines of its type. The equipment of my factory includes a 5 horse-power gasoline engine, a 2 k. w. compound generator, two motors, a screw-cutting lathe, two watchmakers' lathes, and a number of other special machines, such as milling and grinding machines of my own design and make.

My work in this line began with a great desire to become a finished mechanic. Fourteen years ago I made a watch-maker's bench, composed of 2,500 pieces, and lathe and began repairing watches and clocks. From that time I have been a reader of the best horological and scientific papers, but I never worked as an apprentice in my life.

In building this traction engine model I experienced many difficulties. It is nearly all built-up work, the three elbows in the steam pipe being the only casting used. It is built to the exact scale of a 12 horse-power engine —1½ inches to the foot, or one-eighth size—and is composed of 1,350 pieces: 882 pieces in the two rear wheels, 41 pieces in the differential gearing, 30 flues, water and steam gauges, governor, safety valve, lubricator, pump and whistle. Many special tools were required in its construction, all of which I made on the lathe.

I could not procure a glass tube 1-16 inch in diameter for the water gauge and so had to draw one out of a ¼-inch tube. The engine that this model represents is set to carry 130 lbs. pressure to the square inch. It would have been much easier to have made this steam gauge register 130 actual pounds to the square then, but it was not desirable to carry such a high pressure on the model, so I concluded to increase the registration as many times as I decreased the size of the gauge, which is one-eighth, or to about the size of a dime. This gauge is of the drawn-tube type and the tube is drawn very thin. The internal diameter is 1-1,000 inch by 3-32 inch and even then it was necessary to use compound rack and pinions, so when the gauge shows 130 there is 16-¼ pounds actual pressure and the pop valve acts.

The differential gearing was quite a difficult piece of work, as I made the milling and wheel cutters to make all of the gears. The time occupied in building the model, including the many dies and gigs, was about ten months, working at odd times and after lamplight.

Miniature traction engine built by an amateur.

—*By courtesy of Popular Mechanics, Chicago.*

GREAT TUNNELS PROJECTED

Two projects for the construction of railway tunnels of unprecedented magnitude are now under discussion. One of them, which appeals strongly to the imagination, if it does not enlist much sympathy among practical men, is Monsieur de Lobel's plan for tunneling Behring Strait to connect Siberia with Alaska. The author of this plan explained it before a large meeting of the Navy and Military Club at St. Petersburg recently. Behring Strait, he said, is about 38½ miles broad and 167 feet deep, but it has two islands so situated that the tunnel could be divided into three sections of about 12½ miles each. The other project is older, and relates to tunneling the English Channel between Dover and Calais. French engineers have recently been studying the enterprise anew. The distance is about 23½ miles. The work would be relatively easy, because the tunnel would run through chalk.

THE MONITOR DRILL

On this page we present a striking picture of one of the great wheat farms which are found in the northwestern part of the United States. Our readers will be interested in an account of the practical work done by the Monitor double disc drill, twenty-five of which are used on this farm, and in this connection, we quote the following from a letter written by Mr. T. Twitchell, the manager of the farm, to the Monitor Drill Co., Minneapolis, Minn., U. S. A.:

"For three years past I have used on my own land, and land of which I am representative 25 of your 22 disc drills. These drills have been used under all conditions, as to mud and dust, on rough and smooth land, on clean and dirty, through corn-stalks and over manure, through water in sloughs and reseeding in tame sod. We have sown wheat, oats, rye, flax, barley, speltz, beans, peas, corn, millet, rape, timothy and brome grass (mixed with oats and barley). We can sow, and even, down to six quarts of timothy and millet to the acre, and up to three bushels of speltz.

"We can run drill shallow enough to sow flax, or we can put on pressure enough to make both wheels clear the ground.

"We can go through any wet place, or any hard spot that any other drill can go, and can seed any grain under any condition as good as any other drill and better than any other drill (under all the possible conditions) that has been sold, where I know the machinery.

"Our breakage has been very light. We have drills that have sown more than 1,000 acres each, and there is very little wear.

"Not wanting to overdo the thing, I will simply say that of the farm machinery with which I have worked for the past twenty-three years, on rather a large scale, I know of no farm tool that does the work for which it was intended better than the Monitor Drill sows seed.

"'As good as the Monitor is good enough.' Twenty years ago, 'Monitor' stood for the best seeder, now it stands for the best drill. Should any one desiring a drill be influenced by anything I have said and purchase a Monitor, it will please three people, you, who sell them for a profit; the buyer who used it at a profit, and the undersigned."

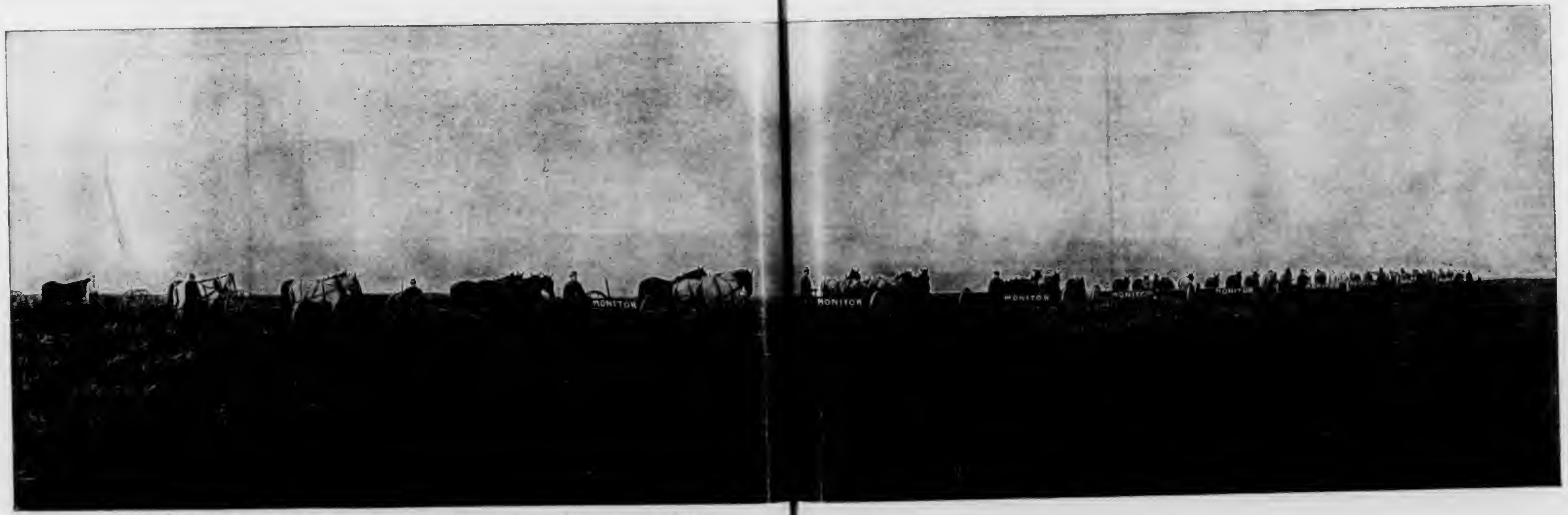
This is certainly a convincing testimonial as to the practical efficiency of the Monitor drill.

GREATEST OF CHAIN CABLES

What are said to be the largest chain cables ever made for ships' use have been turned out in South Wales for the new quadruple-screw turbine Cunarders. The iron bar used in making the links is 3¾ inches in diameter at the smallest part. Each link is about 22¼ inches long, and weighs about 160 pounds. When tested for strength, the breaking stress of 265.7 tons required by law, instead of fracturing these gigantic links, simply elongated them about 1 inch. With the highest stress that the testing machine could give, about 370 tons, the links showed no signs of cracks or fracture.

GRINDING MILLS

Those of our readers who are interested in grinding mills should send for the catalogue issued by the O. S. Kelly Co., Springfield, O., U. S. A. "Kelly's Duplex" grinding mill for corn and cob, combines simplicity, strength and durability, together with great capacity. Owing to its peculiar construction, it has double the grinding surface of any other mill made, as both sides of the revolving burr are utilized in the grinding process. The mill is made in sizes from 4 to 20 horse-power, to grind from eight to fifty bushels per hour. It grinds corn with the shucks on, and all kinds of grain. The O. S Kelly Co. have enjoyed for many years a growing export trade, and are prepared to answer correspondence in any language, and all inquiries and orders are promptly attended to.



The above is from a photograph taken on the Dill Farm, Mapleton, N. D., U. S. A., April, 1905. Twenty-five Monitor double disc drills, made by the Monitor Drill Co., Minneapols, Minn., are used on this farm. Our readers will be interested in a letter written by the manager of the farm, which we reproduce on this page.

PROSPERITY AND COMMON SENSE

A bulletin just issued by the Department of Commerce, states that American exports for eight months, ending with February, exceeded in value those for eight months ending with February, 1905, by $190,000,000. Of this increase, $145,000,000 was of agricultural products, while $45,000,000 was of manufactures.

By themselves, these figures mean little, but considered in their proper relations they give a striking indication of our national prosperity. And to understand what these relations are, we must remember that there are four great groups of articles of foreign commerce, three consisting of both imports and exports, and a fourth of imports alone. The progress of foreign trade with respect to each of these groups is here summarized on the basis of the figures of each for the first seven or eight months of the last three fiscal years—the months ending with January or February.

1. Foodstuffs, agricultural exports, and food imports. This is still our largest class of exports. Its value was $700,000,000 for the period ending with February last, as against $567,000,000 and $658,000,000 for the same periods ending with February in 1905 and 1904. It grows, but irregularly, from year to year, according to the harvests here and abroad. Food imports are practically stationary, now ranging around $80,000,000 for the period. But for our failure so far to develop as we might, sugar and coffee growing in our new possessions, these imports would decline rapidly.

2. Materials, raw or partly manufactured, of industry. Our mine and forest exports are practically stationary, and tend to decline. We are using these products more and more at home. But our imports of materials are increasing steadily. They were $199,000,000 in the eight months ending with February, 1904; $231,000,000 for the period ending with February, 1905; had already reached $221,000,000 by the end of last January, and by the end of the year will doubtless break all records.

3. Manufactures. Imports practically stationary, ranging around $12,000,000 for the period, and tending to decline. Exports growing steadily and rapidly, and increased from $288,000,000 for the period ending with February, 1904, to $342,000,000 for the period ending with February, 1905, to $387,000,000 for the period ending with last February.

4. Luxuries; imports only. They were $6,000,000 for the period ending with February, 1904; $9,000,000 for the period ending with February, 1905, and about $12,500,000 for the period ending with last February.

These figures show prosperity all along the line. Those of the second and third groups are particularly interesting. The prosperity of our agricultural interests requires no argument. These figures show that not only is this nation one of the world's great food storehouses, but that it is also becoming its greatest workshop.

BISSELL CHILLED PLOWS

The Ohio Cultivator Co., Bellevue, O., U. S. A., are manufacturing a full line of the famous Bissell chilled plows for export trade. The Bissell chilled plows are well known abroad, and are made in patterns for all kinds and conditions of soil. Catalogues are issued in English, German, French and Spanish, and may be had for the asking. On account of their reasonableness in price, and their known effectiveness and durability, the Bissell plows are popular wherever they are introduced. Full terms and particulars may be had by writing to the Ohio Cultivator Co., Bellevue, O., U. S. A.

EXPORT IMPLEMENT AGE

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Under no circumstances do we allow commissions to advertising agents.

OUR CONSULAR SERVICE

Secretary of State Elihu Root has displayed from the first an active interest in the long-talked-of reorganization of the United States Consular Service. Mr. Root is an executive officer of high ability, and it has been understood that one of the first departments to which he gave his attention upon assuming his present office was the Consular Service. As a business man, and a lawyer prominent in national affairs, Mr. Root appreciates fully the importance of the United States having well-equipped and capable representation in all foreign countries, and under his direction the work of reorganizing the entire Consular Service of the United States, and bringing it up to a higher standard of merit and ability has been commenced under the active charge of Chief Wilbur J. Carr.

We are presenting in this issue a very good likeness of Secretary Root and Chief Carr. The task that they have undertaken in this department is of huge proportions, and results cannot be immediate. They will be none the less sure, however, and within a comparatively few years a great change will be noted in the character of the men who are sent abroad to represent this government. They will be obliged to stand examinations in the languages and laws of the countries to which they are sent, and will be obliged to display business ability of a high order.

THEORY VS. PROGRESS

Pessimistic prophets sometimes sound sage and logical, but the unreasoning optimist who sees better things despite argument outstrips them. In the days of Stephenson's early experiments it was predicted that a speed ot more than twelve miles an hour by rail would be impracticable, if for no other reason than that the human system would not withstand traveling at a higher rate of speed. In the early days of steamboats it was declared that transatlantic steam navigation would be impossible, mainly because of the inability to provide room aboard ship for the coal that would be necessary for the voyage. The prophet had scarcely done speaking when the news arrived that a ship had just finished a trip across the Atlantic under steam. So with transatlantic cables. Some promulgated the belief that they could never be laid because of the density of the water below a certain depth would be so great that the cable would not sink to the bottom of the ocean. All the wise folk regardless, however, the cable promptly descended to the ocean bed at a depth of 16,404 feet, and within the last year a cable was sunk in the Pacific ocean in the vicinity of the Lunkin islands at a depth of 26,246 feet.

LOCOMOTIVE OUTPUT

The Baldwin Locomotive Works, Philadelphia, Pa., U. S. A., for the first half of 1906 turned out 1,311 locomotives, breaking all previous records for an equal period. This makes 2,500 locomotives built at Baldwin's since July 1 of last year, and if the rate of production for the first half of 1906 is maintained there during the remainder of the calendar year, the output for the twelve months ending December 31st next will be 2,622 engines, or at least 350 more than were built in 1905, which was a record-breaking year at those shops. The American Locomotive Co. are also doing a heavy business, and it is probable that the total American output of locomotives this year will be considerable more than 5,000. The largest force ever known in the history of the Baldwin business is now at work, the payrolls carrying 21,245 names, divided thus: 17.745 at the Philadelphia plant and 3,500 at Lewistown.

STEEL SQUARES

Silas Howes, a blacksmith of South Shaftsbury, Vermont, invented and patented the steel squares which are now commonly used by carpenters. The first ones he made in 1813, and they were fashioned by welding together at right angles, pieces of worn-out saws, on which he marked off the inches. They sold readily at $5.00 and $6.00 each, notwithstanding it was just after the War of 1812, when money was scarce. Howes became a millionaire from his sale of this simple device and did a great deal of good with his wealth. Squares are still made on the spot where the first one was made more than ninety years ago.

A RECORD OF AMERICAN COMMERCE

Eighteen hundred pages of solid statistical material is the story of the year's commerce of the United States, which the Department of Commerce and Labor, through its Bureau of Statistics, has just presented to the public. This is contained in two volumes, one of which, the Statistical Abstract of the United States, 1905, contains something over 600 pages, and the other, entitled "Commerce and Navigation of the United States, 1905," contains about 1,200 pages. The publications of the Bureau of Statistics, which present the record of commerce from month to month, aggregate about 3,000 pages during the year, but the summarization and analysis of the full year's commerce are contained in the two volumes named.

Uninteresting as these pages of statistics may appear, the information which they convey in concrete form is not only useful to the individual engaged in production, manufacture, finance, transportation or commerce, but attractive and instructive to those who follow the details which the tables present. It is interesting, for example, to learn by the volume Commerce and Navigation that this great country, with its varying climate and diversified soils and facilities of production, sent more than $145,000,000 out of the country last year to buy sugar; that practically $65,000,000 of this went to Cuba, $36,000,000 to our own Pacific islands, $15,000,000 to the Dutch island on the other side of the globe (Java), and $12,000,000 to Porto Rico. It is also interesting to learn that $85,000,000 were sent out of the country in 1905 to purchase coffee, of which $64,000,000 were for coffee produced in Brazil. For india rubber to be used in manufacturing, $50,000,000 were sent out last year, and of this over $28,000,000 went to Brazil. Of raw silk for use in the factories of the United States the value imported in 1905 was over $60,000,000, against $30,000,000 in 1901; and of this total of $60,000,000, practically $20,000,000 worth came from Japan. Notwithstanding this large importation of raw silk, the value of silk manufactures brought in was over $32,000,000, of which France contributed by far the largest proportion. Another interesting fact is the very large importation of diamonds and other precious stones, amounting to over $33,000,000 in the last fiscal year, against $8,000,000 a decade ago.

Turning to the export side, it is interesting, for example, to observe that the exportation of American boots and shoes has grown to over $8,000,000 in value in 1905, and that this product of American manufacture went to practically every part of the world, having been sent to eighty-five different countries and colonies. Iron and steel is the largest item of exportation, the total under this class amounting to $135,000,000 in 1905, against $32,000,000 in 1895, and it is interesting to note that manufactures of this character, whether typewriters, sewing machines, stoves and ranges, electrical machinery, cash registers, printing presses, car wheels, or nails and spikes, were distributed to every part of the world, the number of countries and colonies which they invaded aggregating more than 100. American mineral oil was also widely distributed, the number of countries to which it was sent during the year being over eighty, and the valve of its exportations $73,000,000. Every sort of American manufacture was sent in every direction; our telegraph instruments click in the wilds of Africa; our sewing machines whir in the islands of Oceanica; our locomotives screech across the plains of Siberia, Australia and India; and the rattle of the American reaper and mower is heard in the fields of northern and southern Europe, of Africa, of India, of Australia, of Japan, and of the Philippine Islands.

In the smaller volume are many tables and statements showing the growth of our foreign trade and domestic industries for a long term of years. These statements include figures showing the production of the numerous articles which enter into the daily life of the people, the growth of railroads, the growth of transportation on the Great Lakes, the development of the telegraph and telephone systems and increase in number of messages sent, the increase in number of pupils in public schools and of students in colleges and universities, the growth of wealth in the United States, and the increase of wealth per capita, the reduction of the public debt and of interest thereon compared with those of other countries of the world, the increase in our currency and the per capita currency of this country compared with that of other countries, the imports and exports of each of the principal countries of the world and their trade with the United States, the statistics of life insurance and industrial insurance for a long term of years, the deposits in savings banks, and number of depositors and their growth year by year during the last half century, area, population, immigration, banks, bank clearings, Dun's Index Number and failure records, the merchant marine, post-offices, patents, pensions, strength of army and navy, and many other equally interesting subjects.—*Dun's Review.*

ODD FORM OF TREE GRAFTING

Some owners of forests of valuable woods are trying experiments in the southern part of Mexico with the walnut trees. It is not generally known outside the trade that there are many kinds of walnut woods and that only part of them have so far been considered valuable from a commercial point of view. Now the scheme is to make these less valuable or worthless walnuts commercially valuable. And the process is a curious one.

It consists of opening the roots of the trees and inserting one or more nuts, which are quite small, from the best varieties of walnut trees. It is said that these nuts, which are carefully sealed in with wax or a stiff, waterproof stopper, impart a new or closer grain and coloring to the tree.

The southern Indians of Mexico have for centuries been in the habit of securing curious effects in coloring on fine woods by inserting in the above manner nuts of other trees into the roots of the living tree. An enterprising planter in Tabasco has been following out this Indian idea with curious results. He mentioned this to other haciendados, and now several of them are experimenting with the coarser kinds of walnut trees with encouraging results.—*Pacific Fruit World.*

ENGLISH VIEW OF AMERICAN PROSPERITY

An English view of American prosperity is presented in a "Report on the Trade of the United States for the Year 1905," by British Commercial Agent Bell, a copy of whose report to the British foreign office has just reached the Department of Commerce and Labor. The report says, in part:

"The year 1905 has been one of great activity in trade and industry in the United States. There has been an abundance of money for industrial purposes, the farmers have been prosperous, manufacturing plants have turned out quantities of products in excess of any previous year, there has been no overproduction, the mileage of railroads has steadily increased, issues of stocks and bonds have been fewer in proportion to the number of firms in business.

"Over 1,000,000 immigrants have been absorbed by the country without affecting the labor market. Wages have been good, the scale of living has been high, and there has been abundance of employment of labor.

Money in circulation has increased more rapidly than the population, the average circulation on December 31, 1905, having stood at $31.73 per capita, the highest on record. At the end of the year, the stock of gold in the Federal Treasury amounted to over $765,000,000.

"When it is stated that the wealth production on farms in the United States was estimated at $6,415,000,000, it can readily be understood of what importance the farmer is as a purchasing agent. Of all the agricultural products in the United States, corn or maize is the most important. It reached its highest production last year with a crop of 2,708,000,000 bushels, and a total estimated value of $1,216,000,000. Hay was second in order of value, $605,000,000; cotton next, $565,000,000; wheat, $525,000,000; oats, $282,000,000; potatoes, $138,000,000; barley, $58,000,000; tobacco, $52,000,000; sugar cane and sugar beets, $50,000,000. The aggregate yield of cereals, including rice, was 4,521,000,000 bushels, valued at $2,123,000,000, an increase of $145,000,000 over the year previous. During the last five years, the value of the real estate of medium farms has increased 33.5 per cent.

"Foreign commerce exceeded that of any preceding year. The imports of the calendar year 1905 amounted to $1,179,135,344, exceeding those of 1904 by $143,226,154, and the exports of domestic merchandise amounted to $1,599,420,539, exceeding those of 1904 by $173,672,401.

The increase in imports is accounted for chiefly by the extra demand for materials to be used in manufactures. The value of materials imported for this purpose increased from $460,660,209 in 1903 to $561,425,245 in 1905, and formed 47.61 per cent. of the total imports of the latter year, compared with 26.50 per cent. in 1875.

"The importation of luxuries and articles which are outside the bare necessities of life is a good indication of the prosperity of a country. When there is plenty of employment, and money is abundant, there is certain to be an increase in the imports of such articles as silk, jewelry, wines, etc., which are not produced in the country itself. In 1903, the value of luxuries imported amounted to about $142,000,000; in 1904 there was a reduction of about 4 per cent., but in 1905 there was an increase of about 16 per cent. compared with the previous year, so that in 1905 more money was spent in luxuries than in any previous year.

"There are no signs at present of this great activity decreasing. On the contrary, there is every indication that the present will be quite as prosperous as the past, or more so. The country was never more prosperous than at present. Industrial operations are carried on upon a larger scale than ever before."

STEEL PASSENGER CARS

Steel passenger cars will become the standard equipment on up-to-date American railroads in the near future.

Officers of the Pennsylvania Railroad now hold this view. Julius Kruttschnitt, director of maintenance and operation of the Harriman system, is convinced that the wooden passenger car must go.

This important conclusion is urged not only for the operating and maintenance reasons that forced the substitution of all steel cars for wooden cars in the freight service, but by the desire of railroad managers to provide equipment which will afford greater safety to passengers in the case of wrecks.

For some time an all-steel-constructed passenger car has been in service on the Pennsylvania Railroad, running on local trains between Philadelphia and Paoli.

This car was built in the Altoona shops, upon special design made by Theodore N. Ely, chief of motive power.

Two other steel cars, one for mail and the other for baggage, are being built at Altoona. These three cars are experimental, but they are the forerunners of hundreds to follow just as soon as the plans are pronounced perfect and new equipment is required.

The Harriman lines have adopted as standard a special design of all-steel postal car. It is of standard size, and weighs 107,000 pounds. Passenger equipment for this big system after this year will be of steel construction.

Experimental steel cars are now in service on the Erie. Steel cars are being used on those lines of the Long Island Railroad which are operated by electricity, and the New York Central is getting some steel passenger equipment. The Southern Railway will shortly receive three passenger cars of largely steel construction.

Inside of five years, it is believed, all standard passenger cars in service on American railroads will be built of steel. It took nearly ten years to substitute steel coal cars for wooden cars, but this was a much larger undertaking.

AUTOS FOR POLE-SEEKERS

Three 124 horse-power motor cars, with the combination of wheels and runners, are in process of construction for Dr. Frederick A. Cook, to be used in the South Polar expedition of 1907. Previous explorers have found long stretches of sea ice, glaciers and ice caps having a smooth surface, over which an automobile might make good speed. The machine will be readily taken apart for transportation over rough places.

Growing Foreign Vegetables

By M. J. FARRINGTON, in *The Country Gentleman.*

There is a prosperous farm in the town of Newton Upper Falls, not far from Boston, Mass., which is given up largely to the raising of vegetables for the foreign population of the "Hub." The owner and manager of the farm, whose name is Vincent Buitta, is a Sicilian by birth, but has been in this country for over twenty-five years, and has become an expert at intensive farming. Thoroughly Americanized, he is educating a son in Boston, and is a regular exhibitor at the exhibitions of the Massachusetts Horticultural Society, where he has won numerous awards.

A Chinese Radish

Contrary to the general belief, perhaps, it is necessary to produce vegetables of the very highest grade in order to satisfy many of the foreigners in the large cities. The Chinese in particular are very critical in regard to the quality of the vegetables which they buy, and they are among Mr. Buitta's best customers. The Chinese are great consumers of vegetables. They eat no bread, but live on rice, chicken and pork, in addition to vegetables. They are especially fond of radishes, beets, cabbage, mustard and cucumbers—not the kinds with which Americans are familiar, but the varieties which grow in the "Land of the Rising Sun" on the other side of the globe. Mr. Buitta has secured the seeds of the Chinese varieties, and grows them for the benefit of his celestial customers.

A Head of Chinese Cabbage

Now the Chinese radish is something to wonder at. It is not uncommon to find specimens of a foot and a half in length. It is eaten both raw and cooked. It is white, and is carefully washed before being carted to market, so that it presents an attractive appearance, although its enormous size makes its identification a difficult matter for an average American farmer. Chinese cabbage grows tall, rather than round, and when it is grown in the same field with Chinese beet and Chinese chard, it is not easy to tell one vegetable from another until one becomes thoroughly familiar with the slight differences in shape and in the appearance of the tops. When growing, the cabbage bears some resemblance to our celery, being very white at the bottom and green at the top.

Mr. Buitta in His Chinese Garden

Mr. Buitta knows how to get the most from his land. He grows beets and cabbages in the same hill. The cabbages mature first, and are gathered, leaving the beets to come along a little later.

The Chinese mustard is pickled by the orientals in such a way as to secure a relish which somewhat resembles the German sauer kraut. Mr. Buitta gave up raising Chinese cucumbers because of the fact that the vines give off an overpowering odor which make it impossible for him to work among them without acquiring a severe headache. There are a few Chinese farmers in the vicinity of Boston, and they supply this delicacy for the residents of the city's celestial colony.

At one time, Mr. Buitta let a few acres to some Chinese farmers, but they were not particularly successful. He has much better crops of these Chinese vegetables than the Chinese farmers themselves could raise. He says that is only now and then that one finds a really good farmer among the Chinese—at least among those who come to this country.

It should not be understood, however, that Mr. Buitta devotes all his time to raising vegetables for the delight of celestial palates. He caters also to the Italian, French and German trade. He raises some Spanish products as well, and expects during the coming summer to introduce the products of still other foreign climes. I believe he is even talking of securing seeds from Africa, as he wants to make a display at the horticultural exhibition which shall surpass any exhibit of foreign vegetables ever seen in this part of the country.

Some of the German and French vegetables raised on the Buitta farm are known more or less widely in this country. Salsify, tarragon, kohlrabi, dills and endive are among them. Salsify is more commonly known, perhaps, as vegetable oyster, and tarragon is in great favor among Parisian chefs, who use it for flavoring soups. Mr. Buitta has been remarkably successful with endive. He raises enormous heads, and blanches it to perfection by knowing just when to tie up the head in order to exclude the sunlight. He has been able to secure $1.50 a dozen heads for this vegetable from the fancy trade at the very time it was selling in the open market at less than 25 cents a box.

One of the most interesting vegetables grown at this farm is a variety of Sicilian squash which has a very peculiar shape, specimens often being seen which are fully a yard long, although no larger around than one's wrist. Still another variety of Sicilian squash grown by Mr. Buitta frequently reaches mammoth proportions. Single squashes of this variety, which weigh 200 pounds, are not uncommon. Mr. Buitta says that in his native land this kind of squash is sold by the pound. Peddlers suspend a squash in a bag on each side of a diminutive donkey and pass through the streets, cutting off a slice of squash of any size desired by a customer.

Mr. Buitta has a farm of 25 acres, but cultivates only about 15 acres. He finds it very difficult, he says, to find competent assistants. Constant care and attention must be given the growing crops in order to make a success of this intensive type of farming.

Mr. Buitta uses no commercial fertilizers, but is an expert in the use of manure. He knows just what vegetables respond to the application of liquid manure, and which are injured by this treatment. He makes a free use of liquid manure, by the way, and considers it of great value in stimulating growing crops of certain vegetables. He is also an advocate of the most thorough cultivation. He has found, like most market gardeners, that constant cultivation and the liberal use of manure are indispensable in order to be successful in growing marketable crops.

EXPORT IMPLEMENT AGE

POUR LA CIRCULATION À L'ÉTRANGER EXCLUSIVEMENT.

Journal indépendant exclusivement consacré aux intérêts du commerce d'exportation des machines agricoles, pompes, moulins à vent, outils de fermes, fournitures pour crêmeries et articles spèciaux de quincaillerie.

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Dans le Répertoire d'adresses à l'usage des cheteurs, dans la première partie de ce livre nous donnons les renseignements en français; nous avons recours à ce moyen afin de faciliter la correspondance avec les maisons qui font insérer des annonces dans ce journal.

Nos lecteurs peuvent se sentir la liberté de correspondre, dans n'importe quelle langue, avec les fabricants dont nous publions les annonces. Les industriels qui ont recours aux colonnes de "l'Export Implement Age" sont en état de faire des affaires avec des clients de tous les marchés du monde. Ils font une spécialité des commandes provenant de l'étranger. Toutes les demandes de renseignements reçoivent une prompte réponse et les commandes sont exécutées avec soin et sans délai.

Nous attirons l'attention de nos lecteurs sur l'annonce de la Morgan Potter Company, que l'on trouvera à une autre page. Cette compagnie fabrique les sabots de frein élastiques Potter en très grandes quantités. Il y a, à l'heure actuelle, plus de 25,000 jeux de ces sabots en usage aux États-Unis, et tout le monde s'accorde à dire qu'ils sont supérieurs à tous les produits similaires. Ils sont économiques, non seulement parce que leur prix est raisonable mais encore parce qu'ils sont susceptibles d'un long usage et qu'ils sont satisfaisants sous tous les rapports. La compagnie les construit à la fois pour bandages d'acier et bandages de caoutchouc. Ils ne peuvent absolument pas détériorer un bandage en caoutchouc. Toute correspondance de la part de clients de l'étranger decevra le meilleur accueil. Prière de s'adresser à la Morgan Potter Company, Fishkill-on-Hudson, N. Y. (États-Unis d'Amérique).

Les manufacturiers américains dont on trouve les annonces dans ce journal ont pris leurs dispositions pour correspondre dans n'importe quelle langue. Nos lecteurs peuvent se sentir libres de leur écrire dans la langue qui leur convient le mieux.

La Suisse est un des plus remarquables pays du monde. Elle a une population de 3.315.343 âmes ;son commerce extérieur s'élève à plus de 400 millions de dollars, soit 239.333.730 dollars en importations et 170,055.504 en exportations. La prospérité de la Suisse dépend dans une large mesure, de la prospérité du monde extérieur. Les visiteurs laissent annuellement en Suisse de 30 à 40 millions de dollars. En d*pit de ses montagnes, le terre y est soigneusement cultivée et donne en abondance des céréales, des légumes, des fruits, des vins.

Les chaines que l'on dit être les plus grosses qui aient jamais été faites pour l'usage des navires ont été construites dans la Galles du Sud pour les nouveaux navires à turbine Cunard à quadruple hélice. Les barres de fer employées pour la fabrication des anneaux ont 3 pouces ¾ de diamètre à la partie la plus étroite. Chaque anneau a environ 22 pouces ¼ de long et pèse 160 livres environ. Lors des essais de résistance, le poids de 265 tonnes 7-10 exigé par la loi et devant déterminer le rupture, ne fit que les allonger d'un pouce au lieu de les briser. Sous le plus grand effort que les machines à essai pussent produire, soit 370 tonnes environ, les anneaux ne montrèrent aucun signe de crevasse ou de fracture.

Quinze cents wagons construits en douze jours

Tous les records en fait de construction de wagons ont été récemment battus, alors que les employés des ateliers Pullman consacrés à la construction des wagons de marchandises achevèrent pour la ligne Nickel Plate 1500 wagons en douze jours. C'est 300 wagons de plus qu'aucun établissement ait jamais construit dans le même espace de temps.

Quand le dernier wagon fut achevé, les siréens des ateliers résonnèrent, les machines furent arrêtées, et pendant plus d'une heure les ouvriers se livrèrent à des manifestations auxquelles prirent part les administrateurs de la compagnie. Des cigares furent distribués, et les ouvriers furent félicités d'avoir établi un nouveau record.

Pompes en fer

Nous doutons que beaucoup de nos lecteurs se rendent compte de l'étendue du commerce que font les fabricants américains de pompes en fer.

Un reporter de "l'Export Implement Age," au cours d'une de ses tournées, visitait dernièrement MM. F. E. Myers & Bro., d'Ashland (Ohio), et trouvait que leur immense fabrique travaillait jour et nuit, construisant des pompes à raison d'une pompe complète par minute, sans parler des kilomètres de rails d'acier pour portes de granges, des porteurs de foin, des centaines de fourches à foin et de porteurs par jour, des milliers de suspensions pour portes de granges et portes cochères, des supports pour bicyclettes et autres spécialités parmi lesquelles le reporter remarqua un grand nombre d'échelles pour magasins emballées et prètes à partir pour l'étranger.

Cette maison donne un soin tout spécial à l'emballage des marchandises destinées à l'étranger; la preuve en est dans les machines spéciales qu'elle emploie pour la fabrication de ses boites d'expédition et dans l'attention qu'elle donne au moindre détail.

Son nouveau magasin, construit pour remplacer celui qui a été détruit par le feu en janvier dernier, est beaucoup plus vaste que le premier, et est aujourd'hui presque achevé; il possède des ascenseurs actionnés par l'électricité, un departement spécial pour l'emballage des marchandises pour l'étranger; c'est un magasin essentiellement moderne.

La dernière nouveauté en fait de pompes est la pompe Myers à engrenage, qui possède des qualités précieuses, surtout pour les puits profonds.

Nous attirons l'attention de nos lecteurs sur l'annonce de la compagnie au verso de la couverture de ce numéro; on y verra que si cet établissement applique les procédés les plus nouveaux à la fabrication des pompes, il n'ignore point davantage quelles doivent être les qualités de l'annonce moderne.

Prière aux personnes que la question intéresse de s'addresser sans retard à son département pour l'étranger.

Bon nombre des fabricants qui font insérer leurs annonces dans notre journal publient plusieurs catalogues; quand on leur écrit, il est donc important de désigner clairement celui que l'on désire.

Préire de mentionner ce journal en ecrivant aux personnes qui y font insérer des annonces.

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Mr. Buitta in His Chinese Garden

Mr. Buitta knows how to get the most from his land. He grows beets and cabbages in the same hill. The cabbages mature first, and are gathered, leaving the beets to come along a little later.

The Chinese mustard is pickled by the orientals in such a way as to secure a relish which somewhat resembles the German sauer kraut. Mr. Buitta gave up raising Chinese cucumbers because of the fact that the vines give off an overpowering odor which make it impossible for him to work among them without acquiring a severe headache. There are a few Chinese farmers in the vicinity of Boston, and they supply this delicacy for the residents of the city's celestial colony.

At one time, Mr. Buitta let a few acres to some Chinese farmers, but they were not particularly successful. He has much better crops of these Chinese vegetables than the Chinese farmers themselves could raise. He says that is only now and then that one finds a really good farmer among the Chinese—at least among those who come to this country.

It should not be understood, however, that Mr. Buitta devotes all his time to raising vegetables for the delight of celestial palates. He caters also to the Italian, French and German trade. He raises some Spanish products as well, and expects during the coming summer to introduce the products of still other foreign climes. I believe he is even talking of securing seeds from Africa, as he wants to make a display at the horticultural exhibition which shall surpass any exhibit of foreign vegetables ever seen in this part of the country.

Some of the German and French vegetables raised on the Buitta farm are known more or less widely in this country. Salsify, tarragon, kohlrabi, dills and endive are among them. Salsify is more commonly known, perhaps, as vegetable oyster, and tarragon is in great favor among Parisian chefs, who use it for flavoring soups. Mr. Buitta has been remarkably successful with endive. He raises enormous heads, and blanches it to perfection by knowing just when to tie up the head in order to exclude the sunlight. He has been able to secure $1.50 a dozen heads for this vegetable from the fancy trade at the very time it was selling in the open market at less than 25 cents a box.

One of the most interesting vegetables grown at this farm is a variety of Sicilian squash which has a very peculiar shape, specimens often being seen which are fully a yard long, although no larger around than one's wrist. Still another variety of Sicilian squash grown by Mr. Buitta frequently reaches mammoth proportions. Single squashes of this variety, which weigh 200 pounds, are not uncommon. Mr. Buitta says that in his native land this kind of squash is sold by the pound. Peddlers suspend a squash in a bag on each side of a diminutive donkey and pass through the streets, cutting off a slice of squash of any size desired by a customer.

Mr. Buitta has a farm of 25 acres, but cultivates only about 15 acres. He finds it very difficult, he says, to find competent assistants. Constant care and attention must be given the growing crops in order to make a success of this intensive type of farming.

Mr. Buitta uses no commercial fertilizers, but is an expert in the use of manure. He knows just what vegetables respond to the application of liquid manure, and which are injured by this treatment. He makes a free use of liquid manure, by the way, and considers it of great value in stimulating growing crops of certain vegetables. He is also an advocate of the most thorough cultivation. He has found, like most market gardeners, that constant cultivation and the liberal use of manure are indispensable in order to be successful in growing marketable crops.

EXPORT IMPLEMENT AGE

POUR LA CIRCULATION À L'ÉTRANGER EXCLUSIVEMENT.

Journal indépendant exclusivement consacré aux intérêts du commerce d'exportation des machines agricoles, pompes, moulins à vent, outils de fermes, fournitures pour crèmeries et articles spéciaux de quincaillerie.

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Dans le Répertoire d'adresses à l'usage des cheteurs, dans la première partie de ce livre nous donnons les renseignements en français; nous avons recours à ce moyen afin de faciliter la correspondance avec les maisons qui font insérer des annonces dans ce journal.

Nos lecteurs peuvent se sentir la liberté de correspondre, dans n'importe quelle langue, avec les fabricants dont nous publions les annonces. Les industriels qui ont recours aux colonnes de "l'Export Implement Age" sont en état de faire des affaires avec des clients de tous les marchés du monde. Ils font une spécialité des commandes provenant de l'étranger. Toutes les demandes de renseignements reçoivent une prompte réponse et les commandes sont exécutées avec soin et sans délai.

Nous attirons l'attention de nos lecteurs sur l'annonce de la Morgan Potter Company, que l'on trouvera à une autre page. Cette compagnie fabrique les sabots de frein élastiques Potter en très grandes quantités. Il y a, à l'heure actuelle, plus de 25,000 jeux de ces sabots en usage aux États-Unis, et tout le monde s'accorde à dire qu'ils sont supérieurs à tous les produits similaires. Ils sont économiques, non seulement parce que leur prix est raisonnable mais encore parce qu'ils sont susceptibles d'un long usage et qu'ils sont satisfaisants sous tous les rapports. La compagnie les construit à la fois pour bandages d'acier et bandages de caoutchouc. Ils ne peuvent absolument pas détériorer un bandage en caoutchouc. Toute correspondance de la part de clients de l'étranger decevra le meilleur accueil. Prière de s'adresser à la Morgan Potter Company, Fishkill-on-Hudson, N. Y. (États-Unis d'Amérique).

Les manufacturiers américains dont on trouve les annonces dans ce journal ont pris leurs dispositions pour correspondre dans n'importe quelle langue. Nos lecteurs peuvent se sentir libres de leur écrire dans la langue qui leur convient le mieux.

La Suisse est un des plus remarquables pays du monde. Elle a une population de 3,315,343 âmes; son commerce extérieur s'élève à plus de 400 millions de dollars, soit 239,333,730 dollars en importations et 170,055,504 en exportations. La prospérité de la Suisse dépend dans une large mesure, de la prospérité du monde exterieur. Les visiteurs laissent annuellement en Suisse de 30 à 40 millions de dollars. En d'pit de ses montagnes, le terre y est soigneusement cultivée et donne en abondance des céreales, des légumes, des fruits, des vins.

Les chaines que l'on dit être les plus grosses qui aient jamais été faites pour l'usage des navires ont été construites dans la Galles du Sud pour les nouveaux navires à turbine Cunard à quadruple hélice. Les barres de fer employées pour la fabrication des anneaux ont 3 pouces 3/4 de diamètre à la partie la plus étroite. Chaque anneau a environ 22 pouces 1/4 de long et pèse 160 livres environ. Lors des essais de résistance, le poids de 205 tonnes 7-10 exigé par la loi et devant déterminer le rupture, ne fit que les allonger d'un pouce au lieu de les briser. Sous le plus grand effort que les machines à essai pussent produire, soit 370 tonnes environ, les anneaux ne montrérent aucun signe de crevasse ou de fracture.

Quinze cents wagons construits en douze jours

Tous les records en fait de construction de wagons ont été récemment battus, alors que les employés des ateliers Pullman consacrés à la construction des wagons de marchandises achevèrent pour la ligne Nickel Plate 1500 wagons en douze jours. C'est 300 wagons de plus qu'aucun établissemen ait jamais construit dans le même espace de temps.

Quand le dernier wagon fut achevé, les siréens des ateliers résonnèrent, les machines furent arrêtées, et pendant plus d'une heure les ouvriers se livrèrent à des manifestations auxquelles prirent part les administrateurs de la compagnie. Des cigares furent distribués, et les ouvriers furent félicités d'avoir établi un nouveau record.

Pompes en fer

Nous doutons que beaucoup de nos lecteurs se rendent compte de l'étendue du commerce que font les fabricants américains de pompes en fer.

Un reporter de "l'Export Implement Age," au cours d'une de ses tournées, visitait dernièrement MM. F. E. Myers & Bro., d'Ashland (Ohio), et trouvait que leur immense fabrique travaillait jour et nuit, construisant des pompes à raison d'une pompe complète par minute, sans parler des kilométres de rails d'acier pour portes de granges, des porteurs de foin, des centaines de fourches à foin et de porteurs par jour, des milliers de suspensions pour portes de granges et portes cochères, des supports pour bicyclettes et autres spécialités parmi lesquelles le reporter remarqua un grand nombre d'échelles pour magasins emballées et prêtes à partir pour l'étranger.

Cette maison donne un soin tout spécial à l'emballage des marchandises destinées à l'étranger; la preuve en est dans les machines speciales qu'elle emploie pour la fabrication de ses boites d'expédition et dans l'attention qu'elle donne au moindre détail.

Son nouveau magasin, construit pour remplacer celui qui a été détruit par le feu en janvier dernier, est beaucoup plus vaste que le premier, et est aujourd'hui presque achevé; il possède des ascenseurs actionnés par l'électricité, un departement spécial pour l'emballage des marchandises pour l'etranger; c'est un magasin essentiellement moderne.

La dernière nouveauté en fait de pompes est la pompe Myers à engrenage, qui possède des qualités précieuses, surtout pour les puits profonds.

Nous attirons l'attention de nos lecteurs sur l'annonce de la compagnie au verso de la couverture de ce numéro; on y verra que si cet etablissement applique les procédés les plus nouveaux à la fabrication des pompes, il n'ignore point davantage quelles doivent être les qualités de l'annonce moderne.

Prière aux personnes que la question intéresse de s'addresser sans retard à son département pour l'étranger.

Bon nombre des fabricants qui font insérer leurs annonces dans notre journal publient plusieurs catalogues; quand on leur écrit, il est donc important de désigner clairement celui que l'on désire.

Préire de mentionner ce journal en ecrivant aux personnes qui y font insérer des annonces.

INTENTIONAL SECOND EXPOSURE

Ressusctiez la marine marchande américaine

Le rétablissement de la marine marchande américaine pour les transports d'outre-océan signifie l'emploi de plus de 500,000 personnes dans les diverses industries touchant de près ou de loin aux navires. En admettant que la main d'œuvre d'un homme de ce pays vaut 750 dollars par an (chiffre donné par une haute autorité en matière de statistiqres), la somme énorme de 375 millions de dollars serait gagnee tous les ans par l'ouvrier de ce pays. Encore que ces chiffres paraissent énormes et presque incroyables, ils sont pourtant basés sur des calculs qui n'ont rien d'exagéré. Il est impossible de se rendre compte de tous les services que rendrait à chaque industrie le trafic maritime américain. Il affecte toutes les industries, tous les arts, et le fermier même reçoit une large part des gains. Cette industrie est une mine négligée, et même, peut-on dire, abandonnée, et qui ne demande qu'à être rouverte pour produire une richesse sans bornes, et, avec elle, une prospérité qui durera aussi longtemps que nous la protégerons et l'exploiterons.

Nous songeons rarement à nous demander combien d'articles et de produits entrent dans la construction et le maintien d'un navire. Voyons cependant: des produits et matériaux indigènes américains, il y a seize matériaux essentiels, avec une foule d'autres de moindre importance. La ferme, la plantation, le "ranch," le jardin, fournissent plus de cinquante produits qui sont employés sur les vaisseaux, et la fabrique leur donne directement près de 150 articles, dont beaucoup doivent se renouveler au cours de l'existence du navire. En réalité il y a bien peu de choses employées sur la terre ferme qui ne soient de même nécessaires sur le navire. Les manufacturiers de ce pays se rendent aujourd'hui parfaitement compte de la valeur du navire comme source de commerce direct pour leurs marchandises, aussi bien que comme moyen de faire parvenir celles-ci sur les marchés du monde entier. Il se manifeste un désir général pour le rétablissement de la marine marchande du trafic maritime américain. Et le seul obstacle à ce très désirable état des affaires maritimes semble être dans les efforts que font les obstructionnistes du Congrès, pour des raisons que l'on n'a pas encore rendues publiques, pour empêcher que les lois nécessaires pour arriver à ce but important ne soient établies. Mais ces obstructionnistes devront pourtant comprendre que la voix du peuple demande des navires de construction américaine, portant le drapeau américain, et avec ces navires, cette grande nation se propose d'entrer dans le commerce extérieur et de regagner, coûte que coûte, son prestige d'autan sur les grands chemins maritimes du monde.—*American Shipbuilder.*

Exportation d'automobiles

La valeur des automobiles et pièces détachées d'automobiles exportées par les Etats-Unis en mars 1906 s'est élevée à 293,561 dollars; elle s'élevait à 235,826 dollars en mars 1905. Pour les neuf mois prenant fin au 31 mars 1906 les exportations d'automobiles sont évaluées à 2,064,874 dollars, tandis que dans le même espace de temps correspondant, en 1905, elles étaient de 1,638,601 dollars, en 1904, de 1,305,777 dollars. Le Royaume Uni a pris la plus large part des exportations d'automobiles pour les neuf mois: 541,431 dollars; l'Amérique du Nord britannique venait en second lieu avec 353,717 dollars; les Indes occidentales et les iles Bermudes étaient troisièmes avec 220,424 dollars; l'Italie, quatrième avec 171,628 dollars. La valeur des exportations en France, au Mexique et dans la Milanésie britannique dépassait 100,000 dollars.

Utilité de l'automobile moderne

Un fermier de l'état de Wisconsin écrivait à un représentant d'une maison d'automobiles, lui disant qu'il avait l'intention d'acheter une machine et ajoutant ceci: "J'aimerais savoir si vous croyez que je pourrais employer l'automobile à moudre le grain, à faire fonctionner une scie mécanique, à éplucher et à broyer le maïs, et si oui, comment pourrais-je la faire servir à ces divers usages." La réponse étant d'un ton rassurant, le répresentant informant ce génie rural que ces travaux pouraient se faire au moyen d'une automobile, la machine fut achetée. Le représentant, Alfred W. Norris de nom, disait dans sa réponse que l'un des moteurs de sa fabrique s'étant dérangé, on avait introduit a sa place une des plus grosses automobiles. Le bandage d'une des roues d'arrière avait été enlevé, une corde avait été enroulee à sa place pour obtenir une surface plane capable de recevoir une courroie, et pendant une semaine entière toutes les machines de l'établissement furent actionnées par l'automobile.—*The Automobile.*

Prédiction de la fin des locomotives à vapeur

M. W. R. Everett, écrit ce qui suit dans *l'Interurban Railway Journal:* "La locomotive à vapeur a atteint sa limite de perfectionnement. Ses roues motrices sont de la grandeur maximum et le jeu du piston ne peut être augmenté. Elle ne peut circuler sans danger sur une longueur de plus de 250 milles avec un train, et elle doit tôt ou tard céder la place à l'énergie électrique-gazoline. Ici le développement semble illimité. On construit aujourd'hui des machines à gazoline de 166 chevaux, et il ne s'écoulera peut-être pas bien des années avant que de lourds trains soient tirés par ces machines. Le wagon capable de fournir l'énergie qui le met en mouvement semble être le wagon idéal de l'avenir. L'idée, aujourd'hui dans son enfance, peut prendre de grands développements d'ici quelques années, et bientôt peut-être de longs trains seront mis en mouvement de cette façon au lieu d'un seul wagon.

"Le wagon à "self-énergie" demeurera. Il sera perfectionné, développé et finerà par déplacer les systèmes à vapeur et à trolley. N'ayant à s'arrêter que pour s'approvisionner de gazoline ces wagons peuvent franchir une distance de 200 à 300 milles, et permettent de réaliser une grande économie en locomotives. Aujourd'hui il faut deux locomotives pour le trajet de Chicago à Saint Louis. Le wagon électrique-gazoline pourura faire le trajet d'un grand terminus à l'autre, coupant ainsi en deux exactement le nombre de locomotives actuellement employées, et réduira dans des proportions colossales les frais de manœuvre.

"Les lignes de chemins de fer à vapeur de ce pays, là où circulent côte à côte pour ainsi dire les tramways interurbains, sont forcées de faire face à la concurrence. Elles commencent à avoir recours au wagon à self-énergie. Si les compagnies de tramways avaient été plus sages, elles n'auraient pas été audevant de cette concurrence, de cette guerre. Elles auraient évité le droit de passage des lignes de chemins de fer à vapeur et se seraient créé des bases d'opération indépendentes des chemins de fer. Il eut été tout simple pour elles de s'éloigner des lignes de chemins de fer, de toucher à des villes que celles-ci n'atteignaient pas, et d'en développer d'autres dans des localités favorables. De cette façon elles auraient trouvé un appui dans les lignes de chemins de fer à vapeur au lieu d'ennemies. Il s'agit maintenant d'une guerre à mort."

Quelle est la somme totale du commerce du monde entier?

Le ministère du Commerce et du Travail estime que "le commerce international du monde entier s'élèvera à 25 milliards de dollars au moins en 1906." Nous ne sommes pas tout-à-fait convaincu que cette estimation soit exacte, dit la *Chicago Tribune.* On explique que par les termes "commerce international du monde entier" on entend "les importations plus les exportations de tous les pays" dont on puisse se procurer les rapports. Il nous semble que cette méthode de calcul double le chiffre réel. Le commerce total d'un pays se compose du total de ses exportations et de ses importations. Les articles respectifs se rapportent à différentes denrées, et l'on fait une distinction dans les rapports statistiques entre les marchandises importées pour la consommation et celles qui doivent être ré-expédiées.

Le rapport ne donne pas les chiffres du commerce des différentes nations, mais on peut en citer quelques-uns à titre d'exemple. Voici, en chiffres ronds, le commerce d'exportation des principales nations.

Etats-Unis	1905	$1,500,000,000
Royaume Uni	1905	1,500,000,000
Allemagne	1904	1,250,000,000
France	1905	950,000,000
Pays-Bas	1904	800,000,000
Indes britanniques	1905	500,000,000
Russie	1904	500,000,000
Italie	1904	300,000,000
Belgique	1905	420,000,000
Républic argentine	1905	320,000,000
Canada	1905	190,000,000
Brésil	1904	190,000,000
Suisse	1904	170,000,000

Les 8 milliards 500 millions de marchandises exportées réprésentées ici constituent probablement environ les deux tiers du total des exportations, soit 12 à 13 milliards de dollars. Et attendu que ce qui est vendu par tous est aussi acheté par tous, il semble que ce soit une duplication de la somme réelle que d'inclure dans l'évaluation et les chiffres de l'importation et ceux de l'exportation.

En théorie, la valeur totale des exportations sera la même que la valeur totale des importations. En réalité, les chiffres ne s'accordent nullement par suite des modifications que subissent les valeurs des produits dans l'évaluation qui en est faite aux ports d'entrée. Ainsi, pour l'année fiscale 1905 nos exportations au Canada s'élevaient, d'après nos rapports, à 140 millions de dollars, tandis que d'après les rapports du Canada les importations des Etats-Unis s'élevaient à 166 millions de dollars. Mais il semble que la somme totale du commerce international du monde entier doive se représenter soit par le total de ses importations, soit par le total de ses exportations, et non par les deux à la fois.

Le Congrès pan-américain

Le troisième Congrès pan-américain, qui doit se tenir à Rio de Janeiro en juillet promet d'être plus important et de donner des résultats plus durables qu'aucun de ceux qui ont jusqu'ici réuni les représentants des nations du Continent américain. Les Etats-Unis se rendent si bien compte de la haute portée de cette conférence que le Ministre *des affaires étrangères* (les italiques sont les nôtres) des Etats-Unis a promis d'y assister, non pas comme délegué, quelque grands que soient les pouvoirs et les résponsabilités attachés à ce titre, mais comme ministre des affaires étrangères. Le Congrès aura certainement pour résultat et ce ne sera sans doute pas le seul bien qui'en découlera—d'affermir l'intimité croissante des nations américaines, et de faire mieux comprendre et apprécier le but et les doctrines de chacune d'elles. Au moment où nous mettons sous presse, douze pays ont signifié leur intention de se faire représenter; la République Argentine, la République de Bolivie, le Brésil, le Chili, la République de Costa-Rica, Cuba, la République de l'Equateur, le Mexique, la République de Panama, le Paraguay, les Etats-Unis et l'Uruguay. Le Congrès discutera quatorze questions générales; quelques-unes ont dejà été considérées par les Congrès antérieurs de Montevideo et du Mexique, tandis que d'autres seront pour la première fois sur le tapis. Les questions à discuter peuvent se diviser en trois groupes généraux: les questions politiques, les questions commerciales et les questions sanitaires, bien que, à considérer quelques-unes des questions sous un aspect plus vaste, on pourrait les inclure dans les trois groupes à la fois.

Des questions politiques, la plus importante est la Doctrine de Drago ou de Calvo, principe qui est à l'Amérique du Sud ce que la Doctrine de Monroe est aux Etats-Unis. Elle a pour but de prévenir le recouvrement par la force de certaines dettes. La discussion aura pour but de faire accepter le principe comme loi internationale à la prochaine conférence de la paix à la Haye. Une deuxième question politique qui sera discutée, surtout en vue d'obtenir des instructions uniformes pour les délégués des nations américaines à la Conférence de la Haye, c'est l'arbitration volontaire des disputes qui peuvent s'élever entre les nations. Une troisème question politique est celle de la naturalisation en ce qui concerne la situation des personnes naturalisées retournant dans leur pays d'origine.

Les questions sanitaires comprennent la reconnaissance internationale des diplômes professionnels et les règlements uniformes d'hygiène publique et de quarantaine dont le trait essentiel serait l'assistance mutuelle pour la prévention des épidémies et de la propagation des maladies contagieuses.

Au point de vue commercial, le Congrès pan-américain promet de servir les interêts du commerce entre les Etats-Unis et les autres nations du continent américain, commerce qui est en voie de se développer d'une manière vigoureuse. Les questions connerciales dejà proposées pour la discussion et qui ont été acceptées, comprennent le développement de relations commerciales plus étroites entre les Républiques américaines, impliquant l'établissment d'un meilleur service de bateaux à vapeur, d'une banque pan-américaine, la dissémination des renseignements statistiques et commerciaux; la conclusion de traités de reciprocité; la simplification et l'uniformité des douanes et des règlements des ports; une entente internationale relative à la reconnaissance et à la protection des brevets, des marques de fabrique, des droits d'auteur; le projet d'un chemin de fer pan-américain; la codification des lois publiques internationales, des lois particulières, civiles, commerciales et criminelles de la procédure judiciaire; la réorganisation du Bureau international des Républiques américaines sur une base qui permettrait d'agrandir son champ d'utilité.

Voilà une série de sujets qui couvrent une vaste étendue de terrain, et les discussions ne peuvent être, dans une large mesure, que le préambule et la préparation d'autres réunions d'une nature générale ou spécifique, mais toute conférence qui permet un vaste échange de pensées, même si elle ne donne pas de résultats immédiats, ne peut pas ne pas être utile, non seulement aux pays qui y participent, mais au monde entier.—*Commercial America.*

Le froment et le genre humain

Il est pour le moins curieux de penser que la suprematie de la civilisation occidentale—la suprematie des mangeurs de blé sur les mangeurs de riz—peut dependre en définitive de la decouverte de quelque procédé économique de production des azotates; mais ce n'est pas une moindre autorité que Sir William Ramsay qui l'affirme.

Il y a plus de cinq ans, Sir William Crookes déclarait que, la population du globe augmentant si rapidement, la production du froment serait bientôt insuffisante. Depuis lors, des progres ont été réalisés dans plusieurs expériences ayant pour put d'augmenter la production du blé. Neanmoins, certains hommes de science sont disposes à croire qu'une famine de froment est une des possibilites de l'avenir—et d'un avenir peu eloigné.

On fait des efforts pour éviter ou reculer ce fâcheux etat de choses. Premièrement, on cherche à augmenter la superficie de culture, mais il est evident que cette superficie est limitée; deuxièmement, on s'efforce d'augmenter le rendement par hectare en ameliorant la semence et en choissant celle qui convient le mieux a la localité où elle doit être mise en terre; troisièmement, on s'efforce d'augmenter la récolte par une nourriture azotée plus abondante en alternant les semailles de blé avec les semailles d'une légumineuse produisant des nodules—procédé developpé par le Ministère de l'Agriculture des États-Unis; quatrièmement enfin, on s'évertue à produire artificiellement les azotates.

Pendant des années, les azotates ont été fournis par le Chili, mais cette source est bien près d'être epuisee. Les égouts des villes en fourniraient des quantités prodigieuses si l'on pouvait trouver quelque moyen de les conserver et de les employer qui ne mit pas en danger la santé publique. On estime qu'en Angleterre seulement il se perd chaque année de cette façon une quantité d'engrais d'une valeur de quatre-vingts millions de dollars.

La manufacture artificielle, ou plutôt la fixation artificielle de l'azote trouve dans l'air la grande source du précieux élément. Mais les procédés actuellement en usage son compliqués et coutéux. De nombreux brevets ont été pris. L'une des dernières usines érigées est celle de Svaelfoss (Norvège), où une chute d'eau de trente mille chevaux-vapeur a été utilisée pour produire l'électricité par le moyen de laquelle l'azote est pris à l'air et absorbé par de la chaux. L'azotate de calcium quien résulte est un puissant engrais.

Dans ce problème les jeunes chimistes et les jeunes électriciens de l'heure actuelle ont un travail capable de lasser les épaules des plus robustes et qui devrait satisfaire les plus ambitieux.

L'approvisionnement de lait

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La competencia es muy fuerte en América y el resultado es que los articulos que los manufactureros prósperos están produciendo son los mejores que es posible producir usando un material de alto grado de excelencia y la mano de obra de los más hábiles mecánicos. Sólo nuestros más progresivos manufactureros están en posición de llevar á efecto con buen éxito el comercio de exportación, y lo que es cierto con respecto á los aperos de labranza y maquinaria de hacienda especialmente es también cierto respecto á cualquier otro ramo de la industria fabril.

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Mil Quinientos Carros Fabricados en Doce Dias

Todo lo que se recuerda en la fabricacion de carros ha sido superado cuando los empleados del departamento de carros de carga de las fabricas de Pullman completaron para el ferrocarril Nickel Plate un contrato de 1,500 carros en doce dias, es decir 300 carros mas de los que fueron jamas construidos en el mismo tiempo por ninguna otra empresa fabril.

Cuando se termino el ultimo carro todos los silbatos de los talleres, prorumpieron en atronadores silbidos, se paró toda la maquinaria, y por mas de una hora improvisaron los operarios una ruidosa celebracion, en la cual tomaron parte todos lo principales empleados de la compañia. Se distribuyeron cigarros puros y se felicito a los obreros por su buen éxito en realizar ese triunfo.

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Los profetas pesimistas a veces parecen sabios y logicos; pero el optimista irracional que ve mejores cosas á pesar de todo argumento los excede. En los dias de los primeros experimentos de Staphenson se predijo que seria impracticable una velocidad de doce millas por hora en un ferro-carril, por la sencilla razon de que el sistema humano no podria resistir un viaje a semejante velocidad. En los primeros dias de los barcos de vapor se declaro que la navegacion transatlantica por vapor seria imposible, principalmente porque seria imposible tener a bordo suficiente carbón de piedra para terminar el viaje. Apenas habia acabado de hablar el profeta cuando se recibió la noticia que un buque de vapor acababa de completar la travesia del Atlántico. Lo mismo sucedió con el cable telegráfico del Atlántico. Algunos promulgaron la creencia que nunca se podría colocar un cable en el fondo del Atlántico, á causa de la densidad del agua á cierta profundidad, que decían es tan grande, que el cable no llegaria al fondo del oceano. A pesar de tan sabios pronosticadores, el cable descendió al lecho del oceano á una profundidad de 16,404 pies, y durante el año pasado se ha colocado un cable en el oceano Pacifico cerca de las Islas Laukin, á una profundidad de 29,246 pies.

Las facilidades modernas para el transporte aniquilan las distancias y nos acercan más los mercados extranjeros que algunos lugares del mismo Estado hace pocos años.

El Abasto de Leche Moderno

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Le froment et le genre humain

Il est pour le moins curieux de penser que la suprématie de la civilisation occidentale—la suprématie des mangeurs de blé sur les mangeurs de riz—peut dépendre en définitive de la découverte de quelque procéde écomonique de production des azotates; mais ce n'est pas une moindre autorité que Sir William Ramsay qui l'affirme.

Il y a plus de cinq ans, Sir William Crookes déclarait que, la population du globe augmentant si rapidement, la production du froment serait bientôt insuffisante. Depuis lors, des progrés ont été réalisés dans plusieurs expériences ayant pour put d'augmenter la production du blé. Neanmoins, certains hommes de science sont disposés à croire qu'une famine de froment est une des possibilites de l'avenir—et d'un avenir peu éloigné.

On fait des efforts pour éviter ou reculer ce fâcheux état de choses. Premièrement, on cherche à augmenter la superficie de culture, mais il est évident que cette superficie est limitée; deuxièmement, on s'efforce d'augmenter le rendement par hectare en améliorant la semence et en choissant celle qui convient le mieux à la localité où elle doit être mise en terre; troisièmement, on s'efforce d'augmenter la récolte par une nourriture azotée plus abondante en alternant les semailles de blé avec les semailles d'une légumineuse produisant des nodules—procédé développé par le Ministère de l'Agriculture des Etats-Unis; quatrièmement enfin, on s'évertue à produire artificiellement les azotates.

Pendant des années, les azotates ont été fournis par le Chili, mais cette source est bien près d'être épuisée. Les égouts des villes en fourniraient des quantités prodigieuses si l'on pouvait trouver quelque moyen de les conserver et de les employer qui ne mit pas en danger la santé publique. On estime qu'en Angleterre seulement il se perd chaque année de cette façon une quantité d'engrais d'une valeur de quatre-vingts millions de dollars.

La manufacture artificielle, ou plutôt la fixation artificielle de l'azote trouve dans l'air la grande source du précieux élément. Mais les procédés actuellement en usage son compliqués et coutêux. De nombreux brevets ont été pris. L'une des dernières usines érigées est celle de Svaelfoss (Norvège), où une chute d'eau de trente mille chevaux-vapeur a été utilisée pour produire l'électricité par le moyen de laquelle l'azote est pris à l'air et absorbé par de la chaux. L'azotate de calcium quien résulte est un puissant engrais.

Dans ce problème les jeunes chimistes et les jeunes électriciens de l'heure actuelle ont un travail capable de lasser les épaules des plus robustes et qui devrait satisfaire les plus ambitieux.

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INTENTIONAL SECOND EXPOSURE

¿Qual Es el Valor Total del Comercio del Mundo?

El Departamento de Comercio y Trabajo presenta un informe en que se dice que el comercio internacional del mundo alcanzará un valor total en 1906 de $25,000,000,000 (veinte y cinco mill millones de pesos). "No estamos enteramente convencidos de la exactitud de esa suma," dice el *Chicago Tribune*. La explicación es que con la expresión "comercio internacional del mundo" se quiere significar las importaciones, más las exportaciones de todos los países de la tierra, cuyos datos estadísticos se habían obtenido. Nos parece que este metodo de computar dobla el verdadero. El comercio total de un país dado es el total de sus importaciones, más sus expertaciones. Las partidas respectivas se refieren á diferentes géneros y los informes estadisticos hacen una distinción entre las mercancias importadas para el consumo, y las que se reexportan.

El informe no da los guarismos de las diferentes naciones; pero pueden citarse algunos de ellos como ilustración. El comercio de exportación de algunas de las principales naciones es, en números redondos, el siguiente:

Estados Unidos	1905	$1,500,000,000
Inglaterra	1905	1,500,000,000
Alemania	1904	1,250,000,000
Francia	1905	950,000,000
Países Bajos	1904	800,000,000
India Británica	1905	500,000,000
Rusia	1904	500,000,000
Italia	1904	300,000,000
Belgica	1905	420,000,000
Argentina	1905	320,000,000
Canadá	1905	190,000,000
Brasil	1904	190,000,000
Suiza	1904	170,000,000

Los $8.500,000,000 de las ventas para la exportación aqui representados probablemente representan unas dos terceras partes del comercio total del mundo, es decir, de $12,000,000,000 á $13,000,000,000. Y como lo que se ha vendido por todos tambien se ha comprado por todos, parece duplicarse la cuenta incluyendo tanto los guarismos de las importaciones como los de las exportaciones.

En teoria el gran total de las exportaciones será el mismo que el gran total de las importaciones. En realidad esos grandes totales no se ajustan, á causa del cambio de valuación en los puertos de entrada. Asi, para el año fiscal de 1905 el informe de nuestras exportaciones para el Canadá da la suma de $140,000,000, mientras que en el Canadá se les da á sus importaciones de los Estados Unidos ese año el valor de $166,000,000. Pero parece que el total del comercio internacional del mundo está representado por el total de las importaciones ó por el de las exportaciones, pero no por el de ambas adicionadas.

Revívase la Marina Mercante Amerfcana

La restauración de la marina mercante americana para el tráfico de alta mar significa el empleo de más de 500,000 personas en las varias industrias relacionadas con el tráfico marítimo y otros intereses análogos. Concediendo que el trabajo de un hombre de este país valè $750 al año (cálculo basado sobre la estadística más autorizada), resulta que los trabajadores del país en conjunto ganarían la enorme suma de $375,000,000 al año. Aunque estos guarismos parecen enormes y hasta increíbles, están basados, sin embargo, sobre un cómputo matemático moderado. Es imposible calcular el beneficio que recibirian todas las industrias con el restablecimiento de la marina mercante americana de alta mar. Afectaria toda clase de industrias, artes y hasta la agricultura. Es una industria descuidada, y hasta cierto punto una mina abandonada, que sólo requiere se la vuelva á explotar para producir una riqueza ilimitada, y con esta una prosperidad que durará todo el tiempo que la conservemos y la fomentemos.

Raramente nos detenemos á considerar cuantos articulos y productos entran en la construcción y mantenimiento de un buque. Veamos: de los productos y materiales indigenos americanos se requieren 16 como materiales básicos, sin contar otros muchísimos de menor importancia. De la hacienda de campo y plantaciones, ranchos y huertas se usan más de cincuenta articulos en los buques, mientras que las fábricas suministran directamente más de 150 articulos al buque, renovándose muchos de ellos durante la vida del buque. Apenas hay un articulo de uso diario en tierra que no se requiera á bordo del buque. Los manufactureros del país están hoy convencidos del valor de la marina mercante como un mercado directo para sus productos, asi como el medio de enviar los productos de su industria á todos los mercados del mundo. El pueblo en general quiere que se reviva la industria de construcciones navales, y se restablezca firmemente el tráfico de alta mar, y el único obstáculo á tan importante condición de los negocias marítimo es la oposición de los "oloqueadores" del Congreso, que impiden la necesaria legislación, por razones que aun no se han hecho públicas. Pero esos obstrucionistas deben comprender que la voz del pueblo está en favor de buques de construcción americana que naveguen bajo la bandera americana, y con esos buques se propone esta gran nación entrar á competir en el comercio extranjero, y recobrar su antiguo prestigio en los mares del mundo, cueste lo que costare.—*American Shipbuilder*.

Se Cansa el Acero

Interesante es el problema, á menudo discutido, sobre si el hierro ó el acero cambia sus propiedades por lo que se llama "fatiga." Probablemente, según R. A. Hadfield, dice el *Engineering*, no lo hace, si el material se prepara debidamente en su estado original. Los llamados fallos de esta clase se deben generalmente á que el acero tiene resquebraduras internas sólo descubiertas á menudo por el examen de su micro-estructura, ó porque no estaba en la debida condición cuando se envió al que tenia que usarlo. Los llamados "misteriosos fallos" son generalmente causados por el impropio tratamiento en caliente. Un escritor dice recientemente que una larga experiencia le ha enseñado que el acero no cambia por fatiga ó cansancio. Ese investigador tomó un gran número de ejemplares que habían estado en uso por muchos años, con satisfactorios resultados algunos, y otros poco satisfactorios, y no descubrió diferencia ó fallo en sus cualidades mecánicas. Esta inferencia es probablemente correcta. En el Arsenal de Watertown, en el departamento de pruebas oficiales del Gobierno americano, se hicieron muy interesantes pruebas con el hierro hace veinte y tres años, es decir se sometieron á una poderosa acción mecánica casi hasta el límitie clásico, echándose luégo á un lado, sin que se pudiera descubrir un cambio de calidad. El carácter de la excesiva presión producida por las cargas por tan largo tiempo quedaba todavía.

La expresión "Balanza del comercio" puede engañarnos. Los países no son los que comercian unos con otros, sino los individuos y casas mercantiles. La casa que vende realiza una ganancia, y la casa que compra tiene también una utilidad. Si no fuera asi no habria comercio.

Se Predice el Fin de las Locomtoras de Vapor

W. R. Everett escribe en el *Interurban Railway Journal*: "La locomotora de vapor ha llegado al limite de su desarrollo. Sus ruedas motrices tienen el tamaño máximo, y no se puede aumentar su golpe de pistón. No puede andar sin peligro más de 250 millas con un tren, y al fin y al cabo tendrá que cederle el puesto á la fuerza eléctrica generada por la gasolina. Motores de gasolina se están fabricando hoy que desarrollan una fuerza de 1,600 caballos, y no pasarán muchos años sin que sean arrastrados los trenes por esas máquinas. El carro automático, que suministra su propia fuerza es el carro ideal del porvenir. La idea, que aun está en su infancia, puede desarrollarse dentro de pocos años hasta aplicarse á largos trenes en vez de á un solo carro.

"El carro automático (self-contained) ó que lleva su propia fuerza motriz está aqui para quedarse. De tiempo en tiempo será mejorado y desarrollado hasta reemplazar los sistemas del vapor y los "trolleys." Requiriendo sólo las paradas necesarias para proveerse de gasolina, pueden andar esos carros 200 ó 300 millas con un enorme ahorro en locomotoras. En la actualidad se necesitan dos locomotoras entre Chicago y San Luis. El carro eléctrico de gasolina hará la carrera entre una gran estación terminal y la otra, reduciendo á una mitad el número de locomotoras, mientras que el ahorro en el costo de operación será tremendo.

"Los ferro-carriles de este pais, donde los carros de trole interurbanos corren paralelamente con ellos, se ven obligados á combatir la competencia, y su medio de sonseguir esto es usar el carro que lleva su propio motor. Si las compañías de los carros de trole hubieran sido prudentes, no habrian invitado esa oposición y esa guerra. Debieron haber evitado la servidumbre de paso de los ferrocarriles, y creado nuevos negocios independientemente de las vias ferreas al vapor. Les hubiera sido muy fácil desviar sus lineas de las de los ferro-carriles, tocar las poblaciones pequeñas á que no llegan aquellos, y desarrollar con esto nuevos lugares. De este modo habrían obtenido la cooperación en vez de la oposición de los ferro-carriles. Hoy se hacen una guerra á muerte."

La Dádiva del Rio Nilo

En su discurso presidencial á la Sección de ingenieria de la "British Association," durante su reunión en el Sur del Africa, el Coronel Moncrieff se dilató sobre el hecho de que el Africa está especialmente dependiente de la irrigación, y dijo que los ingenieros modernos no habían ideado ningún método esencialmente nuevo para suministrar el agua á las tierras sedientas. Citó el dicho de Herodoto de que Egipto es la dádiva de, Nilo, y mencionó la inferencia del mismo con respecto al origen de las inundaciones del Nilo. Este, dijo, se halla indudablemente en Abisinia. Las observaciones del Capitán han demostrado finalmente que las lluvias que caen en la cuenca del Nilo Blanco no tienen importancia alguna para Egipto. El Nilo crece desde Junio hasta Agosto, y luégo baja hasta que otra vez vuelve la inundación desde Abisinia por el Nilo Azul. Egipto es simplemente un regado valle de 780 millas de largo, fuera del Delta, que tiene un largo de 100 millas. Ese valle en ninguna parte tiene más de 15 millas de anchura, y en algunas partes tiene menos de una milla.

La Utilidad del Automovil Moderno

Un hacendado de Wisconsin le escribió á un agente de automóviles con respecto á la compra de una máquina, manifestándole lo que necesitaba del modo siguiente: "Quisiera saber si cree Ud. practicable, y cómo podría yo usar el automóvil para moler granos, aserrar y destuzar y picar el maiz." Habiéndole asegurado el agente al genio rural que todos esos trabajos se podian hacer con un automóvil, se efectuó la venta. El agente, Alfred W. Norris, le dijo donde uno de los motores en su planta se había roto, y la dificultad se subsanó alzando con un gato el automóvil más grande en el lugar, se le quitó la llanta á una rueda trasera, se envolvió con soga el cerco de la rueda para obtener una superficie sobre la cual no resbalara la correa motriz, y por este medio se hizo funcionar durante una semana toda la maquinaria de la hacienda.—*The Automobile*.

La Población de Nueva York de Aqui á Muchos Años

En su discurso ante la Asociación de Bancos de ahorros Mr. Vanderlip citó la predicción del Actuario del Gobierno de los Estados Unidos de que Greater New York (Nueva York la Mayor) tendrá cuando venzan los bonos de 4 por ciento recientemente expedidos una población de 8,500,000 almas. A esto añade el *Wall Street Journal*: El Actuario de los Estados Unidos pudo hacer esa predillión con toda seguridad. En los últimos veinte y cinco años ha aumentadu un 110 por ciento la población de Nueva York. La reciente emisión de bonos tiene un plazo de cincuenta años para su vencimiento. Si la población crece en la misma proporción durante los veinte y cinco años venideros, llegará en 1930 á 8,450,000 habitantes, ó á tantos como predice el Actuario en cincuenta años. Aun calculando el crecimiento de la población bajo una base más moderada, parece que el Actuario del Gobierno ha hecho un cálculo muy bajo de la expansión futura de Greater New York. El presidente del Concejo del condado de Londres recientemente predijo que la población de Londres Mayor ascenderia en 1931 á 11,000,000 lo que equivaldria á un crecimiento de 67 por ciento en veinte y cinco años. Calculando el crecimiento de Nueva York en la misma proporción de 67 por ciento, su población ascenderia al vencer los bonos de 4 por ciento á 11,000,000, ó 2,500,000 más de lo que calcula el actuario. Nueva York está creciendo con mayor rapidez que Londres, de modo que al vencer los bonos de 4 por ciento la población de esta ciudad imperial igualará ó excederá entonces la de Londres, sin embargo de tener hoy Londres 2,500,000 habitantes más que Nueva York.

El Sistema Metrico

El Cónsul R. S. Chilton escribe desde Toronto que un eminente manufacturero canadense ha llamado su atención sobre el hecho que las conferencias dadas en todo el Canadá por el Profesor McLeman, bajo los auspicios del Canadá sobre el sistema métrico de pesas y medidas tienen sólo un objeto educacional; no indican la intención de adoptar ese sistema en un porvenir cercano. Dice además el manufacturero:

"La Asociación de Manufactureros Canadenses ha suplicado al Gobierno del Canadá que retire las conferencias de McLeman, y que no se ocupe en la cuestión de pesas y medidas hasta que no lo hagan la Gran Bretaña y los Estados Unidos. También recomiendan que las Cámaras de comercio del Imperio en su sesión del presente año en Londres, pidan se nombre una real comisión que investigue la cuestión de las pesas y medidas para formular un sistema aceptable. La Asociación de Manufactureros Canadenses representa 2,500 de los principales manufactureros del país entre Halifax y Victoria, y por esta razón crei justo que el Consulado de los Estados Unidos informase que los más directamente afectados por el cambio al sistema metrico se oponen á que se trate inmediatamente de la cuestión.

El comercio interior de América se va asi extendiendo cada año á saltos y brincos, y continuará haciéndolo, mientras reine la prosperidad en todo el país, y mientras los ciudadanos de otras tierras continúen inundando á América como un torrente desbordado para absorber aqui los productos americanos y ayudar en la creacion de nuestras industrias y mientras que les sea posible á los manufactureros americanos tener sus fábricas enteramente ocupadas sin particular atención á su comercio de exportación.

Es una fortuna, sin embargo, para el porvenir del comercio americano en general que semejante punto de vista de nuestra situación no destruye enteramente el interes actual de los mas progresivos y previsores manufactureros en el comercio de exportacion. La progresiva idea que hoy prevalece en la mayor parter de las fabricas y talleres americanos es que todo tiempo es el mejor tiempo para la exportación, y que el mejor heno es el que se hace en buen tiempo.—*N. Y. Commercial.*

Automoviles Exportados

El valor de los automóviles y sus accesorios ó partes exportados de los Estados Unidos durante el mes de Marzo, 1906, importaron $293,561, comparados con $235,826 en Marzo de 1905. Durante los nueve meses que terminaron en Marzo de 1906 las exportaciones de automóviles de este país, $2,064,874, comparados con $1,638,601 durante el mismo periodo de 1905, and $1,305,777 en 1904. El Reino Unido nos tomó la mayor parte de nuestras exportaciones de automóviles en los nueve meses, á saber: Inglaterra, $541,431; Canada, $353,717; Indias Occidentales y Bermuda, $220,424; Italia, $171,628. Las exportaciones excedieron un valor de $100,000 para Francia, México y la Australasia.

Un Puente Grandísimo

El nuevo puente ferro-carrilero sobre el Rio Amarillo de la China es uno de los más grandes y notables del mundo. Tiene una y siete-octavas millas de largo, y se fabricó enteramente de acero, sin la menor parte de mamposteria, según informa el agente consular Crist. Descansa sobre inmensos tubos de acero encajonados en el fondo del río, y soportan una serie de arcos que miden de 66 á 98 piés de largo. Algunos de los pilares soportadores se componen de un grupo de ocho tubos de acero hundidos hasta una profundidad de 55 pies en el lecho del rio. Los problemas que tuvieron que resolver los ingenieros eran demasiado dificiles, porque la corriente de ese rio cambia no sólo con la estación, sino también de dia en dia. Algunas veces donde hay un yaciciento de arena un día, se pueden hallar 3 pies de agua el dia siguiente. Las más fuertes corrientes se presentan en Agosto y Septiembre.

Las Exportaciones de "Uncle Sam" (U.S.)

Los mercados principales para los productos de los Estados Unidos son despues de los del Reino Unido, Francia y Alemania, Bélgica, y los Paises Bajos, que son los paises casi más pequeños de Europa. El Reino Unido es el mayor comprador de las mercancias americanas; siguele Alemania, luego Francia. Los países Bajos importaron en 1905 $73,000,000, y las importaciones americanas procedentes de los Países Bajos fueron $22,000,000. Las exportaciones americanas procedentes de los Paises Bajos fueron $22,000,000. Las exportacios americanas para Bélgica valieron en 1905 $38,500,000, y las importaciones americanas procedentes de alli $26,000,000, resultando un comercio de unos $160,000,000 con esos dos países solamente, el area combinada de los cuales es menos que la del Estado de Ohio, y cuyas poblaciones combinadas no excede 12,000,000 de habitantes.

Electricidad en las Cercas de Alambre

El Departamento de Agricultura de este Gobierno, en vista de las quejas de los hacendados, ha determinado investigar la causa de la corrosión de las cercas de alambre. Los expertos han inferido que la causa de la dificultad es un problema metalúrgico. Se dice que los anteriores alambres de hierro eran más duraderos que los alambres últimamente introducidos. Las pruebas hechas parecent indicar que el manganeso contenido en el alambre tiene algo que hacer con la corrosión. El manganeso disuelto en el hierro hasta cierta cantidad aumenta la resistencia eléctrica; pero si el manganeso no está distribuido uniformemente, se pueden generar corrientes eléctricas en el alambre mojado por la lluvia, causando la corrosión por electrolisis. Las profundas picaduras observadas en el alambre corroido tienen todas las propriedades características de la acción electrolítica.

Los Cables de Cadena Mas Grandes

Los que se dice son los cables de cadena mas grandes del mundo jamás fabricados para el uso de los buques son los que se han fabricado en South Wales para los nuevos vapores de turbina y hélices cuádruples de la linea de Cunard. Las barras de hierro empleadas para hacer los eslabones tienen un diámetro de 3¾ pulgadas en la parte más delgada. Cada eslabón tiene 22¼ pulgadas de largo y pesa unas 100 libras. Sometidos á una prueba de una tensión de 205.7 toneladas, en vez de romperse esos gigantezcos eslabones, sólo se pudo estiralos una pulgada. Bajo la más poderosa fuerza tensible que pudo desarrollar la máquina de probar, unas 370 toneladas, no presentaron esos eslabones las más leves señales de rajaduras ó quebradura.

Las Escuadras de Acero

Silas Howes, un herrero de Shaftsbury, Vermont, inventó las escuadras de acero comunmente usadas por los carpinteris, y obtuvo una patente. Las primeras que hizo las fabricó en 1813 de dos piezas ó reglas de sierras gastadas, uniéndo las dos reglas á golpe de martillo en caliente, formando un ángulo recto, y marcando en ellas las pulgadas. Las vendia rápidamente á $5.00 y $6.00 cada una, á pesar de ser poco después de la guerra de 1812, cuando andaba muy escaso el dinero. Howes se hizo un millonario con la venta de esa sencilla invención, é hizo mucho bien con su riqueza. Las escuadras se fabrican todavia en el mismo lugar en que se hizo la primera hace más de noventa años.

Los manufactureros de instrumentos americanos cuyos anuncios aparecen en estas páginas están preparados para atender á su correspondencia extranjera en cualquier idioma. Nuestros lectores pueden con toda confianza escribirles á nuestros anunciadores en cualquier idioma que les convenga.

La maquinaria americana de toda clase se está popularizando en los países extranjeros. Los fabricantes de todos los paises del mundo están usando la maquinaria americana, y cuantos la examinen hallarán no sólo que funcionan satisfactoriamente, sino que su precio es razonable.

EXPORT IMPLEMENT AGE

NUR FÜR'S AUSLAND BESTIMMT.

Ein unabhängiges Blatt, das ausschliesslich dem Exporthandel in landwirtschaftlichen Maschinen, Pumpen, Windmotoren und sämmtlichen Artikeln der Land- und Milchwirtschaft gewidmet ist.

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Im Firmenverzeichnis für Käufer das im ersten Theil dieses Blattes wiedergegeben ist, werden unsere geehrten Leser die betreffenden Waarenartikel in deutscher Sprache wiedergegeben finden. Es geschieht dies um Ihnen die Möglichkeit zu geben, mit unseren Inserenten leichter korrespondiren zu können.

Der Ausdruck "Handels-Bilanz" dürfte leicht irre leiten. Länder handeln nicht miteinander, nur Individuen und Geschäftshäuser treiben Handel. Die Firma welche verkauft erhält einen Profit und diejenige welche kauft erzielt ebenfalls einen Gewinn. Sonst könnte ja überhaupt kein Handel getrieben werden.

Die geschätzten Leser des "*Export Implement Age*" werden höfl. ersucht mit unseren Inserenten in jeder beliebigen Sprache korrespondiren zu wollen. Die Inserenten dieses Blattes sind bereit ihren Exporthandel in jedem Departement aufzunehmen und laden demgemäss Korrespondenz von irgend einem Theile der Welt in jeder Sprache ein.

Die Konkurrenz in Amerika ist sehr gross; das Resultat davon ist, dass die Waare die von hervorragenden Fabrikanten hergestellt wird die allerbeste Waare ist, die Material, pa. Qualität und geschickter Arbeitskunst zu Grunde liegt. Nur unsere fortschrittlichen und erfolgreichen Fabrikanten sind in der Lage den Exporthandel zu bewerkstelligen und triffit dies ganz besonders in der Geräthenbranche zu, event. bei den Fabrikanten landwirthschaftlicher Maschinen. Der Inseratentheil des "*Export Implement Age*" deutet auf unsere hervorragenden Fabrikanten hin, welche stets bereit sind Exportgeschäfte zu hantiren.

Viele unserer Inserenten geben verschiedenartige Kataloge heraus und Diejenigen die an die event. Firmen schreiben, sollten es ja nicht unterlassen genau anzugeben welchen Katalog und in welcher Sprache sie ihn wünschen.

Die ganze Welt kennt das fürchterliche Unglück welches San Franzisko am Mittwoch, den 18. April befallen ist. Die erste und schwerste Erdbeben-Erschütterung fand um 5.15 morgens statt, hunderte von Gebäuden zertrümmernd und die Bürger in Todesangst versetzend. Unmittelbar nach dem Erdbeben brach Feuer aus, auf verschiedenen Plätzen zugleich, und innerhalb drei Stunden verwüstete eine ungeheuere Feursbrunst den ganzen unteren Engros-Distrikt in so vernichtender Weise, dass fast alle Gebäude des Fabrikations- und Wohnviertels buchstäblich zum Raub der Flammen wurden. Das Erdbeben vernichtete auch die Hauptwasserverbindung, was zur Folge hatte, dass die Feuerwehr sich ohnmächtig in der Ausübung ihrer Pflicht erwies. Die San Franzisko Feuerwehr wird, nebenbei bemerkt, als die beste der Welt von den Feuerversicherungs-Gesellschaften betrachtet. Und da geringer Wind vorhanden war, brannte das Feuer in jeder Richtung ungehindert. Dynamit wurde so viel als möglich angewandt und so schnell als es in Gebrauch gebracht werden konnte, doch nicht bis 1 oder 2 Tage später konnte mit der Wiederfeuerung begonnen werden. Das Feuer brannte sich endlich gegen Ende der Woche von selbst aus, nachdem es eine Area von wenigsten fünfzehn Quadratmeilen, den ganzen Geschäftstheil miteinschliessend, vernichtet hatte. Der Haupt Engros-Geschäftstheil, der Residenzviertel in Centrum der Stadt, und der ganze Pensionsstadttheil, wie auch der Ausländerviertel, der sich bis North Beach erstreckt, wurden in Mittleidenschaft gezogen. Grosse Sendungen Fahrzeuge und Geräthe sind von amerikanischen Fabrikanten aus dem Auslande zurückbefördert worden, um die verbrannten Lager theilweise wiederersetzen zu können. Die Bürger der verwüsteten Stadt fangen an sich langsam wieder zu erholen, soweit es Umstäne erlauben; vom Anbegin der Katastrophe hat die Bevölkerung heldenhaften Muth and Entschiedenheit gezeigt unter Konditionen, die wahrlich schrecklich waren.

Fünfzehnhundert Wagons in fünfzehn Tagen gebaut

Jeder Rekord der Wagenkonstruktion wurde jüngst gebrochen, als die Angestellten der Frachtwagen-Abtheilung der "Pullman" Fabrik einen Kontrakt von 1,500 Wagons innerhalb zwölf Tagen für die "Nickelplate Linie" zur Ausführung brachte. Es ist dies 300 Wagen mehr als je zuvor von einer einzigen Gesellschaft in derselben Zeitdauer zur Ausführung gebracht wurde.

Als der letzte Wagen fertighergestellt war, wurden die Pfeifen der Fabrik geblasen, die Maschinerie zum Stillstand gebracht und die Männer feierten dieses Ereigniss eine Stunde lang, an welcher auch die Beamten der Gesellschaft theilnahmen. Cigarren wurden unten den Arbeitern vertheilt, die zum Gelingen ihres Werkes, das eine neue Leitbahn in der Arbeitskunst setzte, auf's Herzlichste beglückwünscht wurden.

Die Gabe des Nils

In der Präsidentenrede die bei Gelegenheit der Ingenieur-Abtheilung, der britischen Vereinigung der süd-afrikanischen Versammlung gehalten wurde, erklärte Oberst Moncrieff, dass die Ingenieurkunst der Neuzeit bis heute noch keinerlei neue Methoden erfunden habe, um die durstige Erde mit Wasser zu versorgen. Er wies auf Herodetus Bemerkung hin, dass "Egypten die Gabe des Nyls" sei und bemerkte, die jüngsten Folgerungen über den Ursprung der Ueberflutungen des Nils. Der Ursprung glaubte er, sei unzweifelhaft in Abessynien zu suchen. Die Beobachtungen des Kapitän Lyons haben kundgethan, dass Regenströme die sich in den grossen Basins des Weissen Nils ergiessen, für Egypten von keiner weiteren Wichtigkeit seien. Der Nil steigt von Juni bis August und sinkt dann wieder bis die Fluten vom Blauen Nil in Abessynien herabströmen. Egypten ist lediglich ein bewässertes Thal 780 Meilen lang, und ausserhalb des Delta, welcher 100 Meilen lang ist, ist dieses Thal nirgends über fünfzehn Meilen breit und in einigen Flecken sogar weniger als eine Meile.

Moderne Transportations-Methoden kennen keine Strecken mehr; sie bringen uns den auswärtigen Märkten näher als es die gleichen Strecken im selben Staate vor einigen Jahren zu bewerkstelligen vermochten.

que el Consulado de los Estados Unidos informase que los mas directamente afectados por el cambio al sistema metrico se oponen a que se trate inmediatamente de la cuestion.

El comercio interior de America se va asi extendiendo cada año a saltos y brincos, y continuará haciéndolo, mientras reine la prosperidad en todo el país, y mientras los ciudadanos de otras tierras continuen inundando a America como un torrente desbordado para absorber aquí los productos americanos y ayudar en la creacion de nuestras industrias y mientras que les sea posible a los manufactureros americanos tener sus fabricas enteramente ocupadas sin particular atencion a su comercio de exportacion.

Es una fortuna, sin embargo, para el porvenir del comercio americano en general que semejante punto de vista de nuestra situacion no destruye enteramente el interes actual de los mas progresivos y previsores manufactureros en el comercio de exportacion. La progresiva idea que hoy prevalece en la mayor parte de las fabricas y talleres americanos es que todo tiempo es el mejor tiempo para la exportacion, y que el mejor heno es el que se hace en buen tiempo.—*N. Y. Commercial.*

Automoviles Exportados

El valor de los automoviles y sus accesorios o partes exportados de los Estados Unidos durante el mes de Marzo, 1906, importaron $203,501, comparados con $235,826 en Marzo de 1905. Durante los nueve meses que terminaron en Marzo de 1906 las exportaciones de automoviles de este país, $2,004,874, comparados con $1,038,001 durante el mismo periodo de 1905, and $1,305,777 en 1904. El Reino Unido nos tomó la mayor parte de nuestras exportaciones de automoviles en los nueve meses, a saber: Inglaterra, $541,431; Canada, $353,717; Indias Occidentales y Bermuda, $220,424; Italia, $171,028. Las exportaciones excedieron un valor de $100,000 para Francia, México y la Australasia.

Un Puente Grandísimo

El nuevo puente ferro-carrilero sobre el Rio Amarillo de la China es uno de los más grandes y notables del mundo. Tiene una y siete-octavas millas de largo, y se fabricó enteramente de acero, sin la menor parte de mampostería, según informa el agente consular Crist. Descansa sobre inmensos tubos de acero encajonados en el fondo del rio, y soportan una serie de arcos que miden de 66 a 98 pies de largo. Algunos de los pilares soportadores se componen de un grupo de ocho tubos de acero hundidos hasta una profundidad de 55 pies en el lecho del rio. Los problemas que tuvieron que resolver los ingenieros eran demasiado difíciles, porque la corriente de ese rio cambia no sólo con la estacion, sino también de dia en dia. Algunas veces donde hay un vaciciento de arena un dia, se pueden hallar 3 pies de agua el dia siguiente. Las más fuertes corrientes se presentan en Agosto y Septiembre.

Las Exportaciones de "Uncle Sam" (U.S.

Los mercados principales para los productos de los Estados Unidos son despues de los del Reino Unido, Francia y Alemania, Belgica, y los Paises Bajos, que son los paises casi mas pequeños de Europa. El Reino Unido es el mayor comprador de las mercancias americanas; siguele Alemania, luego Francia. Los paises Bajos importaron en 1905 $73,000,000 y las importaciones americanas procedentes de los Paises Bajos fueron $22,000,000. Las exportaciones americanas procedentes de los Paises Bajos fueron $22,000,000. Las exportacios americanas para Belgica valieron en 1905 $38,500,000, y las importaciones americanas procedentes de allí $26,000,000, resultando un comercio de unos $110,000,000 con esos dos paises solamente, el area combinada de los cuales es menos que la del Estado de Ohio, y cuyas poblaciones combinadas no excede 12,000,000 de habitantes.

Electricidad en las Cercas de Alambre

El Departamento de Agricultura de este Gobierno, en vista de las quejas de los hacendados, ha determinado investigar la causa de la corrosión de las cercas de alambre. Los expertos han inferido que la causa de la dificultad es un problema metalúrgico. Se dice que los anteriores alambres de hierro eran más duraderos que los alambres últimamente introducidos. Las pruebas hechas parecem indicar que el manganeso contenido en el alambre tiene algo que hacer con la corrosión. El manganeso disuelto en el hierro hasta cierta cantidad aumenta la resistencia eléctrica; pero si el manganeso no está distribuido uniformemente, se pueden generar corrientes eléctricas en el alambre mojado por la lluvia, causando la corrosión por electrolisis. Las profundas picaduras observadas en el alambre corroido tienen todas las propriedades caracteristicas de la accion electrolitica.

Los Cables de Cadena Mas Grandes

Los que se dice son los cables de cadena mas grandes del mundo jamas fabricados para el uso de los buques son los que se han fabricado en South Wales para los nuevos vapores de turbina y hélices cuádruples de la linea de Cunard. Las barras de hierro empleadas para hacer los eslabones tienen un diámetro de 3¾ pulgadas en la parte más delgada. Cada eslabon tiene 22½ pulgadas de largo y pesa unas 160 libras. Sometidos a una prueba de una tension de 205.7 toneladas, en vez de romperse esos gigantezcos eslabones, solo se pudo estiralos una pulgada. Bajo la mas poderosa fuerza tensible que pudo desarrollar la maquina de probar, unas 370 toneladas, no presentaron esos eslabones las mas leves señales de rajaduras o quebradura.

Las Escuadras de Acero

Silas Howes, un herrero de Shaftsbury, Vermont, inventó las escuadras de acero comunmente usadas por los carpinteris, y obtuvo una patente. Las primeras que hizo las fabricó en 1813 de dos piezas o reglas de sierras gastadas, uniendo las dos reglas á golpe de martillo en caliente, formando un ángulo recto, y marcando en ellas las pulgadas. Las vendia rapidamente á $5.00 y $6.00 cada una, á pesar de ser poco despues de la guerra de 1812, cuando andaba muy escaso el dinero. Howes se hizo un millonario con la venta de esa sencilla invención, e hizo mucho bien con su riqueza. Las escuadras se fabrican todavia en el mismo lugar en que se hizo la primera hace más de noventa años.

Los manufactureros de instrumentos americanos cuyos anuncios aparecen en estas páginas están preparados para atender á su correspondencia extranjera en cualquier idioma. Nuestros lectores pueden con toda confianza escribirles á nuestros anunciadores en cualquier idioma que les convenga.

La maquinaria americana de toda clase se está popularizando en los paises extranjeros. Los fabricantes de todos los paises del mundo están usando la maquinaria americana, y cuantos la examinen hallarán no sólo que funcionan satisfactoriamente, sino que su precio es razonable.

EXPORT IMPLEMENT AGE

NUR FÜR'S AUSLAND BESTIMMT.

Ein unabhängiges Blatt, das ausschliesslich dem Exporthandel in landwirtschaftlichen Maschinen, Pumpen, Windmotoren und sämmtlichen Artikeln der Land- und Milchwirtschaft gewidmet ist.

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Im Firmenverzeichnis für Käufer das im ersten Theil dieses Blattes wiedergegeben ist, werden unsere geehrten Leser die betreffenden Waarenartikel in deutscher Sprache wiedergegeben finden. Es geschieht dies um ihnen die Möglichkeit zu geben, mit unseren Inserenten leichter korrespondiren zu können.

Der Ausdruck "Handels-Bilanz" dürfte leicht irre leiten. Länder handeln nicht miteinander, nur Individuen und Geschäftshäuser treiben Handel. Die Firma welche verkauft erhält einen Profit und diejenige welche kauft erzielt ebenfalls einen Gewinn. Sonst könnte ja überhaupt kein Handel getrieben werden.

Die geschätzten Leser des "*Export Implement Age*" werden höfl. ersucht mit unseren Inserenten in jeder beliebigen Sprache korrespondiren zu wollen. Die Inserenten dieses Blattes sind bereit ihren Exporthandel in jedem Departement aufzunehmen und laden demgemäss Korrespondenz von irgend einem Theile der Welt in jeder Sprache ein.

Die Konkurrenz in Amerika ist sehr gross; das Resultat davon ist, dass die Waare die von hervorragenden Fabrikanten hergestellt wird die allerbeste Waare ist, die Material, pa. Qualität und geschickter Arbeitskunst zu Grunde liegt. Nur unsere fortschrittlichen und erfolgreichen Fabrikanten sind in der Lage den Exporthandel zu bewerkstelligen und trifft dies ganz besonders in der Geräthenbranche zu, event. bei den Fabrikanten landwirthschaftlicher Maschinen. Der Inseratentheil des "*Export Implement Age*" deutet auf unsere hervorragenden Fabrikanten hin, welche stets bereit sind Exportgeschäfte zu hantiren.

Viele unserer Inserenten geben verschiedenartige Kataloge heraus und Diejenigen die an die event. Firmen schreiben, sollten es ja nicht unterlassen genau anzugeben welchen Katalog und in welcher Sprache sie ihn wünschen.

Die ganze Welt kennt das fürchterliche Unglück welches San Franzisko am Mittwoch, den 18. April befallen ist. Die erste und schwerste Erdbeben-Erschütterung fand um 5.15 morgens statt, hunderte von Gebäuden zertrümmernd und die Bürger in Todesangst versetzend. Unmittelbar nach dem Erdbeben brach Feuer aus, auf verschiedenen Plätzen zugleich, und innerhalb drei Stunden verwüstete eine ungeheuere Feursbrunst den ganzen unteren Engros-Distrikt in so vernichtender Weise, dass fast alle Gebäude des Fabrikations- und Wohnviertels buchstäblich zum Raub der Flammen wurden. Das Erdbeben vernichtete auch die Hauptwasserverbindung, was zur Folge hatte, dass die Feuerwehr sich ohnmächtig in der Ausübung ihrer Pflicht erwies. Die San Franzisko Feuerwehr wird, nebenbei bemerkt, als die beste der Welt von den Feuerversicherungs-Gesellschaften betrachtet. Und da geringer Wind vorhanden war, brannte das Feuer in jeder Richtung ungehindert. Dynamit wurde so viel als möglich angewandt und so schnell als es in Gebrauch gebracht werden konnte, doch nicht bis 1 oder 2 Tage später konnte mit der Wiederfeuerung begonnen werden. Das Feuer brannte sich endlich gegen Ende der Woche von selbst aus, nachdem es eine Area von wenigsten fünfzehn Quadratmeilen, den ganzen Geschäftstheil miteinschliessend, vernichtet hatte. Der Haupt Engros-Geschäftstheil, der Residenzviertel in Centrum der Stadt, und der ganze Pensionsstadttheil, wie auch der Ausländerviertel, der sich bis North Beach erstreckt, wurden in Mittleidenschaft gezogen. Grosse Sendungen Fahrzeuge und Geräthe sind von amerikanischen Fabrikanten aus dem Auslande zurückbefördert worden, um die verbrannten Lager theilweise wiederersetzen zu können. Die Bürger der verwüsteten Stadt fangen an sich langsam wieder zu erholen, soweit es Umstäne erlauben; vom Anbegin der Katastrophe hat die Bevölkerung heldenhaften Muth and Entschiedenheit gezeigt unter Konditionen, die wahrlich schrecklich waren.

Fünfzehnhundert Wagons in fünfzehn Tagen gebaut

Jeder Rekord der Wagenkonstruktion wurde jüngst gebrochen, als die Angestellten der Frachtwagen-Abtheilung der "Pullman" Fabrik einen Kontrakt von 1,500 Wagons innerhalb zwölf Tagen für die "Nickelplate Linie" zur Ausführung brachte. Es ist dies 300 Wagen mehr als je zuvor von einer einzigen Gesellschaft in derselben Zeitdauer zur Ausführung gebracht wurde.

Als der letzte Wagen fertighergestellt war, wurden die Pfeifen der Fabrik geblasen, die Maschinerie zum Stillstand gebracht und die Männer feierten dieses Ereigniss eine Stunde lang, an welcher auch die Beamten der Gesellschaft theilnahmen. Cigarren wurden unten den Arbeitern vertheilt, die zum Gelingen ihres Werkes, das eine neue Leitbahn in der Arbeitskunst setzte, auf's Herzlichste beglückwünscht wurden.

Die Gabe des Nils

In der Präsidentenrede die bei Gelegenheit der Ingenieur-Abtheilung, der britischen Vereinigung der süd-afrikanischen Versammlung gehalten wurde, erklärte Oberst Moncrieff, dass die Ingenieurkunst der Neuzeit bis heute noch keinerlei neue Methoden erfunden habe, um die durstige Erde mit Wasser zu versorgen. Er wies auf Herodetus Bemerkung hin, dass "Egypten die Gabe des Nyls" sei und bemerkte, die jüngsten Folgerungen über den Ursprung der Ueberflutungen des Nils. Der Ursprung glaubte er, sei unzweifelhaft in Abessynien zu suchen. Die Beobachtungen des Kapitän Lyons haben kundgethan, dass Regenströme die sich in den grossen Basins des Weissen Nils ergiessen, für Egypten von keiner weiteren Wichtigkeit seien. Der Nil steigt von Juni bis August und sinkt dann wieder bis die Fluten vom Blauen Nil in Abessynien herabströmen. Egypten ist lediglich ein bewässertes Thal 780 Meilen lang, und ausserhalb des Delta, welcher 100 Meilen lang ist, ist dieses Thal nirgends über fünfzehn Meilen breit und in einigen Flecken sogar weniger als eine Meile.

Moderne Transportations-Methoden kennen keine Strecken mehr; sie bringen uns den auswärtigen Märkten näher als es die gleichen Strecken im selben Staate vor einigen Jahren zu bewerkstelligen vermochten.

INTENTIONAL SECOND EXPOSURE

Die Abänderungen von Handelsrouten

Den Abänderungen von Handelsrouten dürfen die folgenden Gründe als Ursache angeführt werden: Anbau von mehr Städten als es je zuvor durch irgend eine sonstige Macht erstanden, oder Zerstörung derselben durch Krieg und Erdbeben.

Der Grund für das Vorhandensein eines grossen Handels- und Industriecentrums liegt in der Thatsache, dass Bedingungen der grössten Vortheile darin zu finden seien und sammeln sich gewöhnlich an solchem Stellen grosse Volkmassen an, weil sie dort Beschäftigung und in Folge dessen Vergütung und Ausgleichung ihres Lebensunterhaltes sofort finden.

In fruhesten Zeiten, als noch wenige Leute existirten die es versuchten die verschiedenen Meere mit Schiffen zu befahren, beschränkten die Handels-Reisenden ihre Touren gewöhnlich den Küsten entlang, selten sich so weit hinauswagend, dass das Land ausser Sicht blieb. Die Folge davon war, dass der Handel von Karawanen, die von Land zu Land zogen, ausgeführt wurde; und in der Weise wurde auch jede Handelsverbindung zwischen Asien und Europa angeknüpft.

Die gewohnliche Handelsroute ging durch Babylon, Damaskus und durch andere Städte Westasiens, bis in der Weise die Gestade des mittelländischen Meeres erreicht wurden. Kreuzungen wurden auch in Konstantinopel, Tyre, Antioch und anderen Küstenstädten, die alle bald grosse Handelsmärkte wurden, gemacht. Und obgleich diese Stadte zu wiederholten Malen von Erdbeben heimgesucht wurden, büssten sie dennoch nie ihre eigentliche Wichtigkeit ein—bis endlich die Handelsroute sich änderte. Es gab wohl keine alterthümliche Stadt welche Scene verschwenderischer und zerstörenderer Kriege war als eben Babylon; dennoch behielt es seine stolze Hervorrageheit unter den Städten des Orients bei, doch nur so lange, solange die unzählbaren Karawanen der asiatischen Kaufherren durchs Land ziehen konnten und jene Stadt zum hervorragendsten Handelssitz bildeten.

Von dem Moment aber wo Schiffe von China und Indien ihren Weg durch das rothe Meer fanden und in der Weise die Handelsrouten von den Städten Kleinasiens nach denen Egyptens kreuzten, kam das stolze Babylon in Verfall—und nun wurde Alexandrien der bedeuterdste Handelsmittelpunkt aller Gewässer des mittelländischen Meeres. Seine Schiffe fingen an Handel mit europäischen Häfen zu treiben, und zwar an der ganzen Strecke von Konstantinopel nach dem Gibraltar; seine kommerzielle Grösse wuchs und erweiterte sich sogar als etwa tausend Jahre später, nach dem Einzug der christlichen Aera, Venedig sich zu derartiger Handelswichtigkeit emporschwang, wie keine andere Stadt zuvor. Venedig hielt seine Hervorragenheit als Handelscentrum nur bis zur Entdeckung Amerikas in 1492 aufrecht, die gleichzeitig fast mit der Einfahrt nach Indien, um den südlichsten Kap von Afrika durch den Portuguisen, Vasco de Gama, zu verzeichnen steht.

Daraufhin kam Venedig in gar schnellen Verfall: Alexandrien wurde ein Hafen von nur geringer Wichtigkeit wohingegen die Grosshandelsstädte Europas sich allmählig an den atlantischen Küsten aus bildeten, an den Küsten die sich näher der reichen Hemisphäre Europas anschlossen und für die Schiffahrt, die zwischen Indien und Europa verkehr hatte, am konvenirendsten wurde.

Wie aus Obengesagten ersehen werden kann, trugen die Aenderungen in den Handelsrouten weit mehr zur Vernichtung von Städten als Krieg und Erdbeben bei, und woimmer ein Ort vernichtet wurde, erstand sofort ein neuer an Stelle des alten—schöner, besser, grösser.

Elektrizität in Drahtumzäunung

Das Landwirthschafts Department ist durch das häufige Klagen der Landwirthe veranlasst worden, die Ursache der Zerfressung der Drahtzäune endlich einmal zu untersuchen. Experten sind zu der Ansicht gekommen, dass die Ursache des Uebels auf metallurgischem Probleme zurückzuführen sei. Altes Eisendraht soll z. B. dauerhafter sein als das jüngst eingeführte Stahldraht. Die Resultate der Untersuchungs-Vornahme scheinen darnf hinzudeuten, dass Magnesia welches im Drahte anwesend ist, etwas mit der Zerfressung zu thun habe. Mangan, das im Eisen bis zu einem gewissen Betrage aufgelöst ist, vergrössert die elektrische Widerstandsfähigkeit; falls aber das Mangan nicht gleichmässig vertheilt ist, könnten elektrische Ströme im Drahte erzeugt werden, wenn dasselbe vom Regen durchnässt ist, was zur Zerfressung durch die Elektrolyse führt. Die tiefe Durchlöcherung die im zerfressenen Draht bemerkbar ist, soll, wie es heisst, charakteristisch der elektrolysischen Thätigkeit sein.

Eigenartige Weise von Bäume-Pfropfung

Mehrere Besitzer werthvoller Wäldereien experimentiren augenblickich im südlichen Theil Mexiko's mit gewissen Sorten von Wallnussbäumen. Ausserhalb des Handels ist es vielleicht nicht allzusehr bekannt, dass es vielerlei Gattungen Wallnusswälder giebt und dass nur ein gewisser Theil derselben, soweit uns bekannt ist, als wirklich werthvoll betrachtet worden ist, wenigstens von einem kommerziellen Standpunkte aus. Nun, der Plan ist endlich entworfen worden, diese Art Wallnüssse die weniger werthvoll, event. werthlos sind, für kommerzielle Zwecke werthbringend zu gestalten. Und der damit verbundene Prozess ist ein gar eigenartiger.

Die Prozedur besteht zuvörderst in der Oeffnung der Baumwurzel und der Einflössung einer oder mehrerer kleiner Nüsse der allerbesten Wallnussbaum-Sorte. Es heisst, dass diese Nüsse, die sorgfältig mit Wachs oder mit einer steifen Substanz luftdicht versiegelt sind, dem Baume einen neuen und festern Anstrich und eine ebensolche Färbung verleihen.

Die Indianer von Süd-Mexiko haben seit Jahrhunderten es sich bereits zur Gewohnheit gemacht seltene Effekte in feinen Holzarten hervorzurufen durch Anwendung obengenannter Einrückungs-Methoden in die Wurzel solcher Bäume. Ein unternehmender Pflanzer in Tabasko hat diese Indianeridee mit ausserordentlichem Erfolg zur Ausfahrung gebracht. Er theilte diese Methode anderen Pflanzern mit und mehrere derselben versuchen dasselbe bei einfacheren Wallnuss-Holzsorten einzuführen, was nebenbei bemerkt, sich ausserordentlich erfolgreich zu bewähren scheint.

Der amerikanische Landwirth ist der am besten vorwärtskommende Landmann der Welt. Warum es so ist? In Amerika wird die Arbeit sehr hoch bezahlt. Landwirthschaftliche Arbeiter werden nicht allein sehr hoch bezahlt, sie sind auch äusserst selten erhaltbar. Der amerikanische Landwirth schuldet diese seine Prosperität den von amerikanischen Fabrikanten produzirten arbeitsparenden landwirthschaftlichen Geräthen, welche es ihnen gestatten, nicht nur mehr Land als sonstwo zu kultiviren, sondern auch grosse Ernten und bessere Preise, wegen der hervorragenden Qualität der Landesprodukte, damit zu erzielen.

Eine Prophezei-Maschine

Eine solche Prophezeimaschine existirt in Vashington, D. C., in der Form einer Damfaschine, im Gebrauch des Küstenvermesungs-Bureaus. Dieselbe giebt im Voraus die eit der hohen Ebbe und Flut für event. Loalitäten an, ja macht diese Voraussagungen ogar schon ein ganzes Jahr zuvor. Ihre Areitsverrichtung ist, allerdings, nicht allein auf len bestimmten Zeitraum eines Jahres bechränkt obgleich dies die Maximum-Zeitlänge st für welche diese Maschine konstruirt war. Sie ist kompakt und derart fein arrangirt, dass der Gesammtmechanismus nicht so leicht allgemein verstanden werden kann. Um die Flutbestimmungen im Voraus genau machen zu können, die jährlich in der Form eines dicken, tabellarischen Buches vom Vermessungs-Bureau veröffentlicht werden, muss die Maschine erst sorgfältig gestellt und dann mit der Hand vervollständigt werden. Wie es jedem leicht erklärlich werden dürdfte, gehört zum Stellen der Maschine ungewöhnlich grosse mechanische Akkuratesse, zu der sich auch eine gehörige Portion Verstand gesellen muss. Neunzehn verschiedene Faktoren gehören dazu, um event. Flutbestimmungen auszurechnen. Jeder einzelne Faktor beeinträchtigt den anderen. In Folge dessen musste die Maschine so konstruirt werden, dass die Abweichung des einen Faktoren, auf den andern einen Effekt ausüben muss. Wie dies zu Stande gebracht wird, kann, theilweise durch die Anwesenheit von neunzehn verschiedenen Zifferblättern mit Zeigern erklärt werden. Jeder Zeiger ruht auf einer Hebe, die excentrisch an einer Welle angebracht ist; über der Hebe schlingt sich eine Kette die von dem einen Zeiger zum anderen läuft. Es ist ganz natürlich, dass wenn der eine Excentrik der Hebe sich verändert, diese Aenderung einen verhältnismässigen Effekt auf alle übrigen hat. Diese Maschine wurde von Professor William Ferrell erfunden, der sie der Regierung kostenfrei soweit seine erfinderische Idee in Betracht kommt zum Geschenk machte. Sie kostete anfänglich 3500 Dollar und ist im Stande die Arbeit für vierzig sachfachliche Rechner zu bewerkstelligen.

Chicago-ein Eisen-Centum

Nach hundert Jahren wird die heutige Eisenerz-Quelle der Welt wohl, nach Auffassung von Dr. C. Kenneth Leith, Professor der Geologie in der Universitaät Wiskonsin, erschöpft worden sein. Herr Professor Leith hielt einen auf dieses Thema bezüglichen Vortrag am 9. Februar vor der Geographischen Gesellschaft, worin er behauptete, dass die heute bekannten reichen Lager von Erzen pa. Qualität in verhältnismässig kurzer Zeit erschöpft sein dürften, alswann die niedrigeren Qualitäten gebrauchsweise an die Reihe kommen würden. Dies müsste, wiederum, zur Folge haben, dass die geographische Lage der grossen Stahl- und Eisencentren dieses Landes gewechselt werden. "Es ist schon möglich, dass mit dem Erscheinen minderwerthiger Eisenerze in der Eisenindustrie die Verlegung unserer grossen Schmelzfabriken nach der Nähe ihrer ursprünglichen Quelle erforderlich werden dürfte," bemerkte Herr Dr. Leith, "was aber heissen will, dass das riesige Eisencentrum von Pittsburg und anderen Punkten des Ostens nach Chicago und weiterwestlichen Strecken des Landes wird versetzt werden müssen. Es giebt grosse Lager minderwerthiger Erzqualitäten in Colorado und Wyoming, doch dürften noch viele Jahre verstreichen ehe diese Quellen sich als genügend wichtige Faktoren von kommerzieller Bedeutung erweisen."

Die Erhabenheit New Yorks

"New York" sagte der "Kansas City Star" ist das für die Vereinigten Staaten was "Westminster Abbey" für das britische Kaiserreich ist—der tiefste Ausdruck von Genius und Volkscharakter, erlangt im unbewussten Bestreben und vervollständigt von dem unausbleiblichen Fortschritt der Zeit. Jene haben in der Abbey die Gebeine Chattam's, doch, in der Wall Street versteckt, durch Alter grau und stille, steht die Halle wo George Washington seinen ersten Amtseid leistete. Jene singen die Totenmesse ihrer grossen Todten hinter dem erhabenen Crucifix-Schirm der erlauchten englischen Kirche; wohingegen, zu jedem Fenster steigt Tag und Nacht der klangvolle Ton des unermesslichen Verkehrs auf, wohltönend und gemischt, wie das Geräuch des Felsenufers einer stürmischen Küste, was allerdings schlechte Poesie, doch treffliche Thatsache ist. New York kann nicht sofort, auf den ersten Eindrauck hin, beschrieben werden. Es ist viel zu gross für den Fokus eines Kamera. Es höhnt der gewöhnlichen Sprache wenn es beschrieben werden soll. Worte verhallen vor seiner Grösse wie Kieselsteinchen im Angesichte eines mächtigen Felsens. Es braucht der Jambenverse eines Miltons zu seinem Ruhmesliede. Derjenige welcher behaupten kann, dass New York mit seiner Herrlichkeit ihn nicht beim ersten Anblick überwältigt, oder ihn nicht wenigstens mit seiner Grösse entzückt, muss wahrlich ein geringes Wesen sein.

Ja, New York ist schön, über allen Zweifel erhaben schön. Selbst das "Flatiron-Gebäude" ist es. Photographien dieses Gebäudes sind bedeutungslos. Es ist eine Revolution in der Architektur, das einzig Passende für die bestehende Umgebung—weder hässlich, noch anspruchsvoll. Dasselbe ist auch von all den grossen Hotels, Bureaugebäuden und Läden, die sich am Broadway hinuntererstrecken und im "Park Row" sozusagen Schildwach halten, zu behaupten. Ein Reisender der es versuchen wollte diese Stelle zu kritisiren, oder sie beim ersten Anblick mit den Reizen irgend einer anderen Stadt zu vergleichen, würde mit einer Zinnpfeife in einer Kathedrale spielen wollen.

Ausser der ungeheueren Ausdehnung der Stadt, ihren endlosen Strassen, ihren Dächern die den Himmel zu unterstützen scheinen, muss auch die fleckenlose Reinlichkeit hervorgerufen werden. Die Strassen sehen wie gereinigt und gescheuert aus, die Gebände wie Scheuerstein und die Menschen wie neugeboren. Wenn auch ermüdet und überarbeitet zeigen sie es nicht. Selbst wenn sie in Eile sind, sind sie doch Fremden gegenüber stets rücksichtsvoll; wenn sie vom Unglück erschöpft, heruntergekommen sind, ihr Auge ist doch nie vom Weinen getrübet; ja selbst wenn sie die verwöhnten Opfer beständigen Vergnügens werden, sind sie doch nie hochfahrend, sondern stets dankerfüllt. Als eine westliche Nation sind Amerikaner interessant Bekanntschaft zu machen: gesellig im Umgang, stets heiter beim Abschied; sie bleiben ebenso wie ihre Stadt: ein Ort unermesslicher Herrlichkeit darein einherzugehen und zu bewundern, doch gleichzeitig ein Ort stets interessant ihn zu besuchen, so lange, ehe es den ungeschulten Pilger übermannt und aus ihm einen seiner zahllosen Sklaven macht.

Es ist dies das Krafthaus Amerika's, doch die Nahrung und die Bemannung kommt aus dem endlosen Westen, wo Korn und Oel in so grossem Ueberfluss vorhanden ist und wo so reizend das Landgras wächst und blüht."

Man vergesse ja nicht, dass Gewicht allein bei einem Geräth nicht immer das Vortheilhafteste ist. Eine leichte Maschine, die an den Stärke erforderlichen Stellen sonst durabel gebaut ist, erfordert weit weniger Betriebskraft als eine schwerer Maschine gleicher Art.

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EVOLUTION OF FARM METHODS

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Long centuries ago, perhaps ten thousand ears before history began, men gathered the eed of a wild grass and women crushed the eed between rough stones, and of the meal nade bread, and they and their children did at and were satisfied. In ancient tombs, in aves where once lived the unknown people we all the Cave Dwellers, and in the ruins of the strange homes on piles, long buried in the mud f Swiss lakes, have been found the seeds of this same wild grass. From that ancient grass plant has come down to us, perhaps, the greatest of all food plants. To-day we cannot find it wild anywhere, and it is, no doubt, the oldest of cultivated plants. It has many names in many languages—its English name is "wheat."

In all these centuries of wheat sowing and harvesting, men have gathered the ears of wheat by cutting down the stalks of wheat with a curved knife called a sickle. A reaper has always been understood to be a man who reaps wheat by hand. As the people increased in numbers and spread over the world, more and more bread was made, more acres of wheat sown, more reapers employed to harvest the ever-growing crops. More loaves were wanted from century to century, more reapers, and still more and more must be called to the wheat field—lest the people die for want of bread. The more business-like of the wheat growers, even in ancient times, saw that in order to gather the ever-growing wheat crops they must have something better than the slow, inefficient hand labor of the reaper. What it would be they could not imagine. There seemed to be no better way than to cut down wheat, a few stalks at a time, with a miserable little hand tool. That it might be done in some other way seemed an idle dream, yet, here and there, no doubt, some one tried to think how the dream could be realized. Even as far back as the year 70 A. D., wheat growers in ancient Gaul used a crude contrivance that could be made to gather ears of wheat. The reports of Roman writers then living show that the machine consisted of a broad and shallow two-wheel cart, having a series of two-edged, pointed knives fastened side by side on the front edge of the cart. The cart had two shafts placed behind, and an ox, harnessed into the shafts, could push the cart through a field of standing wheat. As the cart was pushed forward, the ears of wheat were caught between the knives, torn off and swept into the cart. The machine could not have been a success. It was too roughly made to be of real service, and it was soon abandoned, and would have been forgotten were it not for the reports of the Roman travelers in Gaul who saw it and thought it worth describing as a curiosity seen on their travels. Then, for sixteen hundred years, the reapers with their sickles went on reaping the wheat and similar crops by hard hand labor.

When we come to modern times, we find that the demand for bread outran the ability of the farmers to harvest the wheat crops. They could sow and cultivate crops—to gather them when ripe was quite another matter. More and more men were engaged in making things in shops, and the number of reapers did not increase as fast as the demand for bread. Hand-reaping made every loaf dear, and in the middle of the eighteenth century it was seen, particularly in Great Britain, Western Europe, and in this country, that something must be done, or every loaf would cost more than the people could pay. Then Necessity became the mother of Invention.

We seldom see, to-day, a sickle used to harvest wheat, and we do not realize the very great difficulty in making anything that would imitate a man gathering wheat by hand. The man holds the sickle in his right hand and gathers a bundle of stalks together in his left hand. Then with a sweeping semi-circular stroke, he cuts the stalks. Then he lays the bunch of stalks, each with its ear, on the ground, and then prepares for the next stroke. As the stalks are comparatively low, the man must stoop to the work, even if cutting only a little of the stalk just below the ear. The work requires both hands and arms and, between every stroke or two, the reaper must step nearer to the wheat. At its best, it was hard, wearisome labor, wasteful of time, strength and wheat, for much of it was lost, trampled upon and destroyed. To prevent the loss and to make it easy to bind the wheat into sheaves, the stalks were gathered together into little heaps called gavels. These gavels were then bound together and made the sheaves. This binding together of the gavels was done with a rope of straw, and this work had to be done by the reaper or by another man, sometimes called the sheaf binder. This labor also added to the cost of harvesting the crop and the cost of every loaf.

When, in the last part of the eighteenth century, it became imperative to use machinery in gathering wheat, rye, oats and other crops, many people were sure that by taking thought some kind of wheat-harvesting machine could be made and used. There were no power tools, no machine shops, no trained, scientific workmen. The materials for such a machine were scarce and of inferior quality, and everything must be made by hand and with very poor tools. As no such machine had been made, the first inventors in Great Britain naturally copied the old machine used in Gaul sixteen hundred years before, and then endeavored to improve upon it. One of the first machines ever used consisted of a wagon having a reel, armed with large combs, and placed over the forward edge of the wagon. The horse walked behind and pushed the wagon into the standing wheat. The forward motion of the wagon was turned into the revolving motion of its wheels, and, by means of simple gearing, this rotary motion was transferred from the wheels to the reel, and it revolved just as long and as fast as the wagon was pushed forward by the horse. The revolving reel swept over the tops of the wheat, and its combs plucked off the ears and threw them into the wagon.

Here was the correct, basic idea. The horse walking supplied the motive power, the wheels of the machine transformed a part of this power into useful work in gathering wheat. The key had been found. If the rotary motion of the wheels could be transformed to a reel, then it could be transferred to other things, to some form of stalk cutting knives or to any form of revolving cutter and to other appliances useful in harvesting a crop of any kind. The first machine to employ this idea was invented in England about 1780, and, as it cut off the heads of the wheat, it was a machine that would now be called a "header." At first, all the machines that were made seem to have been of this header type, and a great number of machines employed a number of different methods of cutting the wheat stalks. All were experimental in character, and many years passed, after infinite labor and endless experiments in the field, before anything like a really practical machine was produced. By the beginning of the nineteenth century, a great number of inventors, farmers and manufacturers, both in Great Britain and in the United States, were engaged upon the great work of perfecting the harvesting machine. These experiments soon showed that the idea of pushing a machine through the standing wheat was wasteful of power and injurious to the crop, as the horses trampled and injured the straw. It was seen that the horse must go in front, and that he must walk in the clear space left after the machine had traveled once across the field. This seemed easy, and yet even up to 1826 there were machines used that were pushed from behind.

The history of this experimental stage in the development of the modern harvesting machine extended from about 1780 to 1850. It is a long, and not wholly happy story of slow and gradual improvement, one idea by one man in one place added to another idea by still another man somewhere else. Many times the same improvement was invented by different men in different countries. Trial, failure and loss seemed to be the only road to success. In this country over 3,000 patents were taken out on improvements in harvesting machines. No great, commanding inventive genius, no Edison of the Harvest appeared to revolutionize the work in a day. In place of this, an immense number of earnest men, through half a century, spent time, labor and money, and often in vain, to create a practical machine that would harvest the crops of the world, release the reaper from his ancient, ill paid, and yet enormously expensive labor, and reduce the cost of a loaf of bread.

The harvesting machine became a practical, commercial success more than half a century ago, and in that time the progress of still greater and greater improvement went on more rapidly than before. From 1780 to 1850 was the time of experiment, selection, the survival of the best, the period of evolution. From 1850 to 1906 is the period of refinement, perfection of details, and the world-wide acceptance of American ideas and American machinery. To-day, the annual wheat crop of the world is estimated at two thousand millions, five hundred and eighty-six thousand bushels. Of this crop, we raise over five hundred million bushels. The larger part of this enormous crop is harvested by machinery. Suppose all the wheat in the world must be gathered by hand. Where would we find the reapers? What would a loaf of bread cost?

When we approach a great piece of machinery that we know is the outcome of a century of invention and experiment, we naturally first

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By Mr. Charles Barnard, in *The Metropolitan and Rural Home.*

Long centuries ago, perhaps ten thousand years before history began, men gathered the seed of a wild grass and women crushed the seed between rough stones, and of the meal made bread, and they and their children did eat and were satisfied. In ancient tombs, in caves where once lived the unknown people we call the Cave Dwellers, and in the ruins of the strange homes on piles, long buried in the mud of Swiss lakes, have been found the seeds of this same wild grass. From that ancient grass plant has come down to us, perhaps, the greatest of all food plants. To-day we cannot find it wild anywhere, and it is, no doubt, the oldest of cultivated plants. It has many names in many languages—its English name is "wheat."

In all these centuries of wheat sowing and harvesting, men have gathered the ears of wheat by cutting down the stalks of wheat with a curved knife called a sickle. A reaper has always been understood to be a man who reaps wheat by hand. As the people increased in numbers and spread over the world, more and more bread was made, more acres of wheat sown, more reapers employed to harvest the ever-growing crops. More loaves were wanted from century to century, more reapers, and still more and more must be called to the wheat field—lest the people die for want of bread. The more business-like of the wheat growers, even in ancient times, saw that in order to gather the ever-growing wheat crops they must have something better than the slow, inefficient hand labor of the reaper. What it would be they could not imagine. There seemed to be no better way than to cut down wheat, a few stalks at a time, with a miserable little hand tool. That it might be done in some other way seemed an idle dream, yet, here and there, no doubt, some one tried to think how the dream could be realized. Even as far back as the year 70 A. D., wheat growers in ancient Gaul used a crude contrivance that could be made to gather ears of wheat. The reports of Roman writers then living show that the machine consisted of a broad and shallow two-wheel cart, having a series of two-edged, pointed knives fastened side by side on the front edge of the cart. The cart had two shafts placed behind, and an ox, harnessed into the shafts, could push the cart through a field of standing wheat. As the cart was pushed forward, the ears of wheat were caught between the knives, torn off and swept into the cart. The machine could not have been a success. It was too roughly made to be of real service, and it was soon abandoned, and would have been forgotten were it not for the reports of the Roman travelers in Gaul who saw it and thought it worth describing as a curiosity seen on their travels. Then, for sixteen hundred years, the reapers with their sickles went on reaping the wheat and similar crops by hard hand labor.

When we come to modern times, we find that the demand for bread outran the ability of the farmers to harvest the wheat crops. They could sow and cultivate crops—to gather them when ripe was quite another matter. More and more men were engaged in making things in shops, and the number of reapers did not increase as fast as the demand for bread. Hand-reaping made every loaf dear, and in the middle of the eighteenth century it was seen, particularly in Great Britain, Western Europe, and in this country, that something must be done, or every loaf would cost more than the people could pay. Then Necessity became the mother of Invention.

We seldom see, to-day, a sickle used to harvest wheat, and we do not realize the very great difficulty in making anything that would imitate a man gathering wheat by hand. The man holds the sickle in his right hand and gathers a bundle of stalks together in his left hand. Then with a sweeping semi-circular stroke, he cuts the stalks. Then he lays the bunch of stalks, each with its ear, on the ground, and then prepares for the next stroke. As the stalks are comparatively low, the man must stoop to the work, even if cutting only a little of the stalk just below the ear. The work requires both hands and arms and, between every stroke or two, the reaper must step nearer to the wheat. At its best, it was hard, wearisome labor, wasteful of time, strength and wheat, for much of it was lost, trampled upon and destroyed. To prevent the loss and to make it easy to bind the wheat into sheaves, the stalks were gathered together into little heaps called gavels. These gavels were then bound together and made the sheaves. This binding together of the gavels was done with a rope of straw, and this work had to be done by the reaper or by another man, sometimes called the sheaf binder. This labor also added to the cost of harvesting the crop and the cost of every loaf.

When, in the last part of the eighteenth century, it became imperative to use machinery in gathering wheat, rye, oats and other crops, many people were sure that by taking thought some kind of wheat-harvesting machine could be made and used. There were no power tools, no machine shops, no trained, scientific workmen. The materials for such a machine were scarce and of inferior quality, and everything must be made by hand and with very poor tools. As no such machine had been made, the first inventors in Great Britain naturally copied the old machine used in Gaul sixteen hundred years before, and then endeavored to improve upon it. One of the first machines ever used consisted of a wagon having a reel, armed with large combs, and placed over the forward edge of the wagon. The horse walked behind and pushed the wagon into the standing wheat. The forward motion of the wagon was turned into the revolving motion of its wheels, and, by means of simple gearing, this rotary motion was transferred from the wheels to the reel, and it revolved just as long and as fast as the wagon was pushed forward by the horse. The revolving reel swept over the tops of the wheat, and its combs plucked off the ears and threw them into the wagon.

Here was the correct, basic idea. The horse walking supplied the motive power, the wheels of the machine transformed a part of this power into useful work in gathering wheat. The key had been found. If the rotary motion of the wheels could be transformed to a reel, then it could be transferred to other things, to some form of stalk cutting knives or to any form of revolving cutter and to other appliances useful in harvesting a crop of any kind. The first machine to employ this idea was invented in England about 1786, and, as it cut off the heads of the wheat, it was a machine that would now be called a "header." At first, all the machines that were made seem to have been of this header type, and a great number of machines employed a number of different methods of cutting the wheat stalks. All were experimental in character, and many years passed, after infinite labor and endless experiments in the field, before anything like a really practical machine was produced. By the beginning of the nineteenth century, a great number of inventors, farmers and manufacturers, both in Great Britain and in the United States, were engaged upon the great work of perfecting the harvesting machine. These experiments soon showed that the idea of pushing a machine through the standing wheat was wasteful of power and injurious to the crop, as the horses trampled and injured the straw. It was seen that the horse must go in front, and that he must walk in the clear space left after the machine had traveled once across the field. This seemed easy, and yet even up to 1826 there were machines used that were pushed from behind.

The history of this experimental stage in the development of the modern harvesting machine extended from about 1786 to 1850. It is a long, and not wholly happy story of slow and gradual improvement, one idea by one man in one place added to another idea by still another man somewhere else. Many times the same improvement was invented by different men in different countries. Trial, failure and loss seemed to be the only road to success. In this country over 3,000 patents were taken out on improvements in harvesting machines. No great, commanding inventive genius, no Edison of the Harvest appeared to revolutionize the work in a day. In place of this, an immense number of earnest men, through half a century, spent time, labor and money, and often in vain, to create a practical machine that would harvest the crops of the world, release the reaper from his ancient, ill-paid, and yet enormously expensive labor, and reduce the cost of a loaf of bread.

The harvesting machine became a practical, commercial success more than half a century ago, and in that time the progress of still greater and greater improvement went on more rapidly than before. From 1786 to 1850 was the time of experiment, selection, the survival of the best, the period of evolution. From 1850 to 1906 is the period of refinement, perfection of details, and the world-wide acceptance of American ideas and American machinery. To-day, the annual wheat crop of the world is estimated at two thousand millions, five hundred and eighty-six thousand bushels. Of this crop, we raise over five hundred million bushels. The larger part of this enormous crop is harvested by machinery. Suppose all the wheat in the world must be gathered by hand. Where would we find the reapers? What would a loaf of bread cost?

When we approach a great piece of machinery that we know is the outcome of a century of invention and experiment, we naturally first

INTENTIONAL SECOND EXPOSURE

try to understand the underlying principles on which it is built. Here is a machine that has revolutionized the agriculture of the world, that has released forever millions of men from hard, ill-paid labor, and has reduced the price of bread to all the world.

We have seen that the first step in the evolution of the harvesting machine was the transformation of power. The header of 1786 had the correct idea applied in the wrong way. To see how the same idea is used to-day, let us examine a modern mowing machine. The mower consists of a steel frame supported on two wheels, and carrying the mowing machinery. In front of the frame are the shafts for the horse, and on top is a seat for the driver.

The wheels supporting the frame have a wide tread, armed with denticulations or little teeth. The broad tread prevents the wheels from sinking in the soft soil of the harvest field, and the denticulations bite the soil and give the wheels a firm hold on the ground, so that they will not slip in soft or muddy places. If the machine were merely a cart, the tread of the wheels might be smooth, as the whole power of the horse could be used in dragging it along. In the mower, a large part of the power of the horse must be employed in cutting grass, and if the wheels were smooth and slipped, the machine itself might slide along the ground and do no work in mowing the grass. The teeth or cleats on the tread of the wheels catch in the soil and create friction between the wheel and the ground, and make it possible to transform some of the power of the horse into the work of mowing. We shall see that this idea of using wheels having cleats on the tread of the wheels is used in all kinds of harvesting machines.

At one side of the machine, and close to the ground, is a long, steel arm projecting at a right angle from the frame of the mower. This steel arm or bar has, in front, a series of steel projections that resemble short, pointed fingers. The end of the bar next the frame, is supported by a small wheel that runs on the ground and assists in supporting the bar. At the further or out-board end of the bar is a large finger projecting forward at a right angle with the bar, and behind it is a board that extends backward like a wing. We examine the row of fingers in front of the bar, and see that there is a slot in each finger, and that in these slots is a series of thin, sharp, triangular-shaped knives. These knives are all joined to a bar behind them, and this bar is connected with mechanism that is operated by the wheels of the machine itself.

We go out to the open field where the grass is ready to cut. A horse is put in the shafts of the mower, and, when properly harnessed, the driver sits on the machine and takes up the reins. The horse starts toward the standing grass, and we watch the performance. As the horse walks beside the tall, uncut grass we see the knives begin to vibrate between the row of fingers. We see the sharp fingers enter the grass close to the ground, pushing it aside and forcing it into the spaces between the fingers and pressing it against the sharp edges of the rapidly vibrating knives. As the machine advances, we see that the first and larger finger, at the end of the bar, divides the grass that is to be cut from that which is to be left standing.

The instant the fingers enter the grass, the stalks bend and bow over backward, and fall to the ground behind the bar, the grass falling in a continuous cascade as the flying knives cut it down. A trail of cut grass lies like a broad, green wake behind the machine, growing longer every instant, as the horse walks rapidly forward across the field. How clean and perfect the cut, not a spire of grass is left standing behind the onward sweeping mower. What a wide swathe the rattling machine cuts through the grass. How steadily the horse pulls; how complete the transformation of his great strength into the splendid work of harvesting the ripe grass; how evenly balanced the machine. The horse walks in front of the machine, and yet it follows him with unvarying precision, no matter how the grass, in being cut, tries to pull the machine to one side. It is a grand piece of machinery, a splendid example of American scientific knowledge made useful in harvesting one of our greatest crops. We stand astonished, and yet charmed at the machine and its works. Even while we are admiring the machine we see that it has mowed down an acre of tall grass.

Presently we see a big stone among the stalks of uncut grass, and wonder if the shining fingers and flying knives will strike it; wonder if the splendid machine is to be wrecked by striking the stone. Just as the machine is about to strike the stone, we see the driver on the machine move a lever. The bar, fingers, knives and all rises gently, slips over the stone unharmed, and then drops down again and attends to business just as if nothing had happened. Presently, the man seems to think that he has cut down enough for one day. He stops and moves a lever, and the bar rises till it stands upright beside the frame of the machine. The man turns his horse out into the road, and we see him ride away on the machine, precisely as if he were riding a buggy and leaving two curious dented tracks in the dust of the road.

Having seen a mower, and gained an idea of its general construction, we shall be ready, when we meet its great companion machines, to readily grasp the points of resemblance between them, and see how a reaper intended to harvest wheat differs from a mower used in harvesting grass. Before we examine the reaper, we may turn aside for a moment in a wheat field belonging to a small farmer who uses his mower as a temporary reaper. The farmer puts an extra seat on his mower, and adds a small platform of wooden slats to the back of the bar carrying the knives. With these attachments, the farmer brings his mower to his wheat field. He sits on the mower and takes up the reins to guide the horse to the work. On the extra seat sits a boy carrying a large wooden rake. The machine enters the wheat and cuts it just as if it were grass, the boy using the rake to draw the stalks of wheat against the fingers and knives. The wheat stalks fall on the platform as fast as cut, and are carried on it as the machine moves forward. Presently, when the platform is loaded with wheat, a lever is moved and the platform is upset, and the wheat slides off behind in a heap or gavel. The platform is restored to its proper position on the machine, and the work proceeds again till the second load is ready to be dumped.

We readily see that the boy in handling the rake is doing just what the old reaper did when he held a bunch of wheat stalks in his left hand, while he swept his sickle through the stalks with his right hand. The difference is that the boy can do at one stroke of his rake ten times as much as the reaper did with both hands, and do it better and a hundred times as fast. This is a very ingenious way of using a mower to do the work of a reaper, and, while it is not the best way to reap great wheat fields, it will enable us to understand the real reaping machine when we see it.

We visit another farm where wheat is grown on a large scale, and go out to the field to see a strange fantastic machine unlike anything we have seen before. The farmer harnesses two horses to the machine, and while this is being done, we can examine the machine. We see, at once, that it runs upon two wheels. One of these, at the left side of the machine, has a broad tread having cleats, and we recognize that this is the drive wheel, or the wheel that transfers the power of the two horses in pulling the machine forward to the machinery used in reaping. The other and smaller wheel, having a smooth tread, is at the extreme right of the machine, and merely assists in carrying the weight of the machine. We see also the same long bar supporting the fingers and the same vibrating knives. So far the machine is practically a copy of the mower, except in the position of the wheels. We look closer, and see that behind the bar supporting the fingers and knives, there is a platform of a triangular-shape, and having at the back a curved guard. In front of the small wheel is a large, wing-like finger, called the divider, and we recognize that it serves to separate the grain that is to be cut from the grain that is to be left standing. At the other end of the bar is a second divider projecting in front like a large, thin finger, and clearly designed to guide the grain to the knives. Between the large wheel and the bar and its platform is a curious piece of machinery that we easily see must be some kind of raking machine.

By this time the horses are harnessed, and the farmer sits at the extreme left of the machine in front of the drive wheel. He takes up the reins and guides the horses to the edge of the standing wheat. He moves a lever, and the whole machine starts into the most surprising activity. It acts, as did the mower, cutting down the wheat in a continuous cascade of stalks that fall backward upon the platform of the machine. We remember the boy with the rake, riding on the mower when it was used to reap wheat, and instantly recognize that here is a machine that does its own raking. Four great rakes rise, whirl round, fall again and sweep over the wheat, pressing every stalk against the flying knives, sweeping along the platform and brushing the cut stalks over it, slewing them around as they go, all the heads and all the butts together, and leaving the grain in a gavel or loose bundle on the ground behind the machine.

We don't know whether to laugh at the fantastic rakes whirling and twisting in the air, or to clap our hands in applause at this splendid exhibition of American skill and science. Here is the reaper—not the poor, bent laborer of the ancient fields, bending over his slow, laborious toil, but a grand machine doing his work better, faster and a hundred times cheaper. As the man rides by, guiding his horses and managing his strange machine, we take off our hats to

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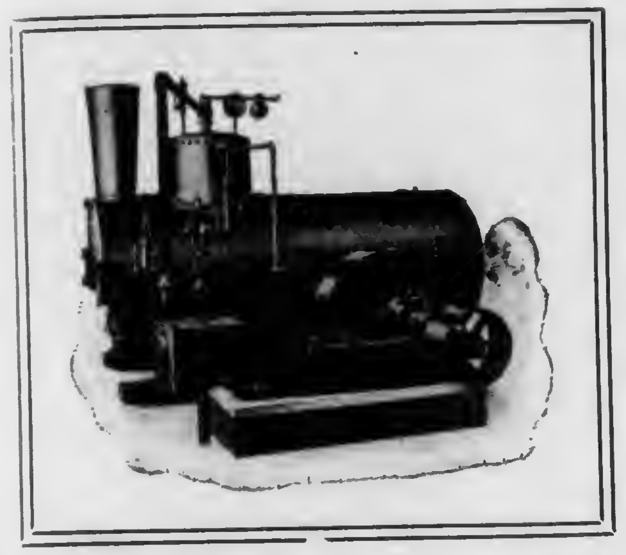

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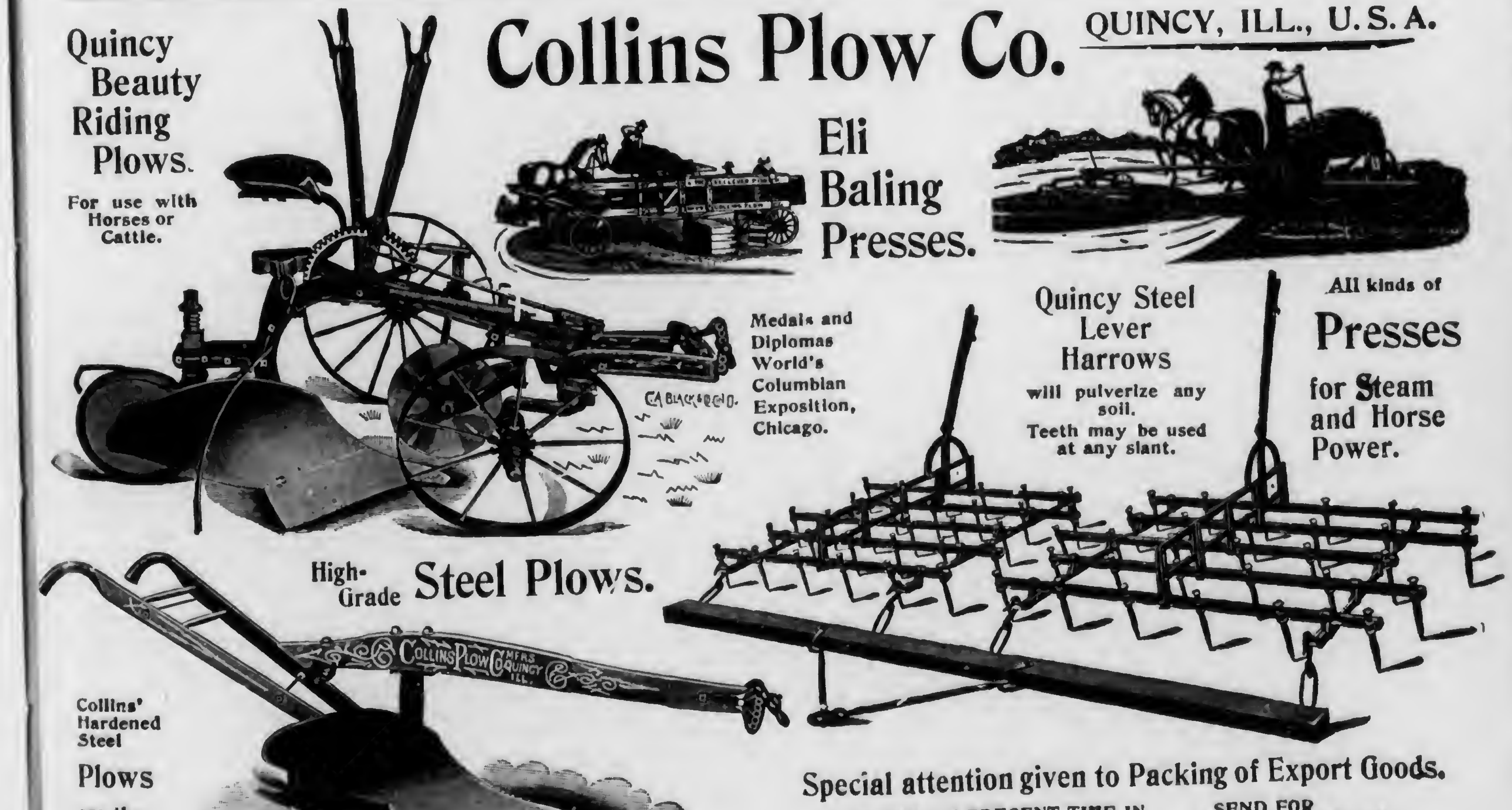

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him—the American farmer—a man of science, using a wonderful invention to help him in his great business of harvesting wheat that the people may have a larger and cheaper loaf of bread.

Once more we visit a wheat field at harvest time. We go far out West where farms are big, and things are done in a big way. We stand on the prairie where the golden wheat stretches to the horizon in every direction, like a yellow ocean whose waves roll swiftly along, bending the nodding ears, as they are driven by the prairie breeze. There is something awe-inspiring in the vastness and immensity of this limitless field of ripening grain. We think of the ancient reaper. What is a man that he presume to harvest such a crop with only his two hands? He might work, from sun to sun every day for a year, and he could not reap the grain in sight. It would be buried in next winter's snow long before he could cut a narrow lane through the wheat from here to the horizon. How many men would it take to reap the grain that is in sight from this one spot? Nobody knows—and the men couldn't be found to do it.

While we are admiring this splendid crop, covering all the land, men and horses begin to gather. Each pair of horses drags a strange machine, unlike anything we have ever met, and yet having a curious likeness to every machine we have seen. Like a regiment on parade, the men and horses and great machines line up in the standing wheat. One machine starts, then another, and then another, till ten machines are marching, one a little in advance of the other, straight across the prairie toward the horizon. As the last machine stands waiting its turn to join the noisy, dusty procession, we have a chance to examine the machine. We see that it is a distant relative of the mower, is almost own brother to the reaper, and yet is different from either reaper or mower. There is the same large drive wheel and the small outboard wheel, the same fingers and vibrating knives, the same divider and the same wing at the inboard end of the bar to guide the stalks of wheat to the knives. In place of the whirling rakes of the reaper, we see a great wooden reel suspended over the knives. In place of the triangular platform of the reaper, we have a square platform. Looking closer, we see that the platform appears to be covered with canvas. On the left of the platform and over the drive wheel is a curious, complicated piece of machinery, the exact use of which is not very clear at first sight. We may be sure that it does something, and does it very well.

We hear a man call, the horses seem to know it is time to start, and almost before we know what has happened, the great machine springs suddenly into action, and we walk rapidly behind it over the cut stubble to see what is happening. We see the great reel turning over and over, pressing the grain against the knives and laying it flat on the platform as fast as it is cut. Then a most surprising thing happens. The grain begins to travel sideways over the platform to the left. We see that the canvas covering the platform is an endless apron as wide as the platform. It is what is called an apron conveyor, and is in constant motion, conveying the grain, as fast as it falls, to the left side of the platform. Here is a second conveyor, placed at an incline, and we see the stream of grain, delivered by the apron conveyor, slide off and enter the second conveyor, called the elevator, and rise to the top of the elevator. Here a most extraordinary thing happens. The elevator delivers the continuous sheet of cut grain to a deck or elevated platform. Instantly strange curved arms rise, gather it together, press it into the shape of a sheaf. A curious wooden wing taps and shapes it so that all the butts of the stalks rest even and square. Then the most wonderful thing of all happens. Almost before we can see how it is done, a stout twine is bound round the sheaf, drawn tight—and knotted firmly. The bound and finished sheaf rolls out of the machine, and falls upon some iron fingers. In less time than it takes to tell, another sheaf is gathered, adjusted, bound with twine, tied and delivered along side the first. Presently the iron fingers have as many bound sheaves as they can hold, and gently dump them off upon the ground.

The performance goes on continuously, the machine sweeping forward without pause, the cut grain falls in a continuous shower upon the traveling apron, and moves onward and upward without pause or break, the busy arms clasp it, form it into bundles, the binding mechanism chatters continuously, the knots are tied at the right instant, the twine is cut, and the finished sheaf soon lies with its fellows upon the ground.

We pause in wonder and admiration, and look at the magic transformation of the great wheat field. Even now the first machine is half a mile ahead, and the nine other machines are stretched out in a long line behind. A great triangular piece of the standing wheat has disappeared, and in its place is a low sheet of yellow stubble covered with scores of sheaves of wheat. Men are already busy gathering them up and stacking them together to dry. Every moment the bare space grows bigger, every moment the number of stacks grows larger.

We have seen an American harvest. We have seen a hundred years of experiment, invention and practical trial in our vast prairie farms, brought to a triumphant demonstration of the application of science to the ancient toil of the reaper of wheat. No miserable hand tools on our farms, no ill-paid laborers bending over an ancient way of doing a poor piece of hard labor. Here we have the reaper and binder combined, the greatest machine for the feeding of the people that the world has ever seen. It does not matter who made the particular machines we have just seen. It does not matter that there are other binders that do the same work in a different way. The great point is that American inventors, all working together, produced a marvelous machine that they called a harvesting machine. It is not of any particular consequence who makes these mowers, reapers and binders, because every machine is essentially like every other, and differ only in details. These details are important and useful, and had we time, whole pages of *The Rural Home* could be fitted with pictures and descriptions of these different details. Every reaper cuts down the grain and delivers it in heaps as it sweeps over the field. Every binder transfers the stream of cut grain to some kind of mechanism for binding it up into sheaves. In one excellent machine, the machinery for bunching the grain together, binding it with twine, tying the knot and depositing the sheaf on the ground is on a level with the platform. In others, and equally good machines, the grain is carried up an elevator to the deck, where the iron arms and steel fingers shape it into a sheaf and bind it with twine. We may be sure that every maker is honestly trying to make the best machine he can, and make it out of the best materials. He has always a sharp eye for any improvement that can be found that will make it cut and bind wheat faster, better and cheaper. If an improvement in a machine will reduce the cost of cutting and binding a sheaf of wheat a fraction of one cent, we may be sure the maker will add that improvement to his machine no matter what it costs. In all the machines the same general principles of construction are to be seen, and yet each machine differs in details, and these details are of great variety and of real interest to every farmer. There is also one more harvesting machine sometimes used. It is called the header, because it cuts off only the heads of the wheat, and curiously enough, it is the only machine used to-day in which the horses walk behind the machine.

At the close of the Revolutionary War, we found ourselves a little people of only four millions—mostly farmers. The farmer was the only man sure of plenty to eat, for he was a producer of food. He raised more than he could eat, and, if he lived within a few miles of a town, he sold the surplus to the people who had no farms. The people in the towns had to buy everything they wanted to eat from the nearby farmers, for there were no railroads. This state of affairs continued up to about the year 1837. By this time the farms had multiplied greatly, but the towns had grown faster than the farms. The railroads had begun to spread slowly over the land, and steamboats were common on the rivers. Yet, for some reason, there came a great business depression, and nobody seemed able to understand its cause. It was the lack of reapers. The farmer could sow, but not reap. Then, after nine dull years of hard times, prosperity returned, food was cheap and plentiful. Why? Because of the invention and perfection of farm machinery. The mower, reaper and binder had arrived on the farm. Crops of enormous size could be harvested cheaply and quickly. The crops created wealth, the moving of the crops practically created the railroads, and manufactures were possible because men could work and live in cities. To-day these machines make it possible for the farmer to sow and reap, make it possible to reduce the cost of every loaf of bread in the world.

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FOREIGN COMMERCE OF UNITED STATES

The foreign commerce of the United States during the fiscal year which ends with June, promises to exceed in both imports and exports that of any earlier year. The details of ten months of the year's commerce have been announced by the Department of Commerce and Labor through its bureau of statistics, and should May and June show as large a monthly average as that of the ten months for which the record has been made, the imports will be $1,225,000,000, and the exports $1,780,000,000, or a total of little more than $3,000,000,000. Whether the two months for which the record has not yet been received will show as large an average as that made during the ten months is quite uncertain, as May and June figures are usually slightly below the average, both as to imports and exports; but it seems quite apparent that both imports and exports will be larger than in any preceding year.

The figures of the fiscal year 1905 exceed, both as to imports and exports, those of any prior year, and the fact that the recorded imports of ten months of 1906 exceed by nearly $100,000,000 those of the corresponding months of last year, and that exports exceed by over $200,000,000 those of the corresponding months of last year, suggests that there can be no doubt that the fiscal year 1906 will make the highest record ever shown in both imports and exports, and therefore the largest total of foreign commerce.

Secretary of State Elihu Root, who is directing the reorganization of the United States Consular Service

The remarkable growth of about $100,000,000 in imports and $200,000,000 in exports presents some interesting facts. In imports, the increase occurs in all classes except foodstuffs, and in exports the increase occurs in every class, but especially in foodstuffs and manufactures. In the class of imports designated "articles in a crude condition for use in manufacturing," the increase in the ten months ending with April amounts to $25,000,000, a gain of about 8 per cent. over the corresponding months of last year. The articles wholly or partially manufactured for use in manufacturing show also an increase of $25,000,000, a gain of about 21 per cent. The group "articles manufactured ready for consumption" shows an increase of $35,000,000, a gain of nearly 25 per cent. The group "articles of voluntary use and luxuries, etc.," shows an increase of $23,000,000, a gain of about 19 per cent., while "articles of food and live animals" show a reduction of $22,000,000, a loss of about 9 per cent.

The decrease in the importation of articles of food occurs chiefly in sugar and coffee. The value of the sugar imported in the ten months ending with April fell off about $12,000,000, being $70,000,000, against $82,000,000 in the same months of last year. This fall, however, is due wholly to a reduction in the price, the quantity of sugar imported having actually increased about 50,000,000 pounds as compared with the same months of last year. Coffee shows a fall of about $13,000,000, the figures for ten months being $64,000,000, against $77,000,000 in the same months of last year; the reduction occurs in quantity as well as value, the quantity of coffee imported for the ten months being about 743,000,000 pounds against 954,000,000 pounds in the same months of last year. Tea imports also show a slight reduction, being $13,500,000 in value in ten months of 1906, against $15,333,000 in the same months of last year; the reduction occurring in quantity as well as value.

The increase in the value of articles imported for use in manufacture occurs in several great classes. Chemicals, largely used in manufacturing, show a gain aggregating about $7,000,000, raw cotton a gain of about $1,500,000, hides and skins a gain of about $15,000,000, tin a gain of about $5,000,000, tobacco a gain of about $4,000,000, copper an increase of about $4,500,000. This indicates an increase of about $37,000,000, while the total increase in all articles of this class was but about $25,000,000, due to the fact that raw silk shows a reduction of about $4,000,000, wool a reduction of about $2,500,000, and india rubber a reduction of about $5,500,000. In the articles partially manufactured for use in manufacturing, and in manufactures and luxuries, growth occurs in a large number of classes. Iron and steel increased about $5,000,000, manufactures of fibers about $9,000,000, manufactures of cotton about $11,500,000, and manufactures of wool about $5,000,000. Imports of diamonds and other precious stones also continue to show a large increase, the total for the ten months ending with April being about $33,000,000 against about $27,000,000 in the same months of last year.

The exports show increases in every group, agricultural products showing a gain of $150,000,000 compared with the same months of last year, and manufactures an increase of practically $50,000,000 compared with the same months of last year, while products of the forests show a gain of $10,000,000, those of the mines about $3,000,000, those of fisheries nearly $1,000,000, and the miscellaneous group over $1,000,000. The increase in agricultural products occurs chiefly in corn, $16,500,000; oats, over $14,000,000; wheat, about $23,000,000, and flour, about $17,000,000, while provisions also show a gain of nearly $36,000,000. In manufactures by far the largest increase occurs in iron and steel, in which the increase is $20,000,000. Cotton manufactures show an increase of about $6,500,000; leather and manufactures thereof, an increase of about $2,500,000; cars, carriages, etc., an increase of about $5,500,000; agricultural implements about $2,000,000; scientific instruments nearly $2,000,000; mineral oil about $3,000,000; paper about $1,000,000, and paraffin about $1,000,000.

Trade with the non-contiguous territories of the United States also shows an increase in the grand total, but not in merchandise received from the sections thus designated. The total value of merchandise shipped to the non-contiguous territories in the ten months ending with April is $42,000,000 against $33,500,000 in the same months of last year; but the value of the merchandise shipped from those territories to the United States is somewhat less than in the same months of the last year, having been in the ten months ending with April, $54,000,000, against $57,000,000 in the same months of last year, this decrease being due to the fall in the price of sugar. The value of the sugar shipped from the Hawaiian islands to the United States in the ten months ending with April is but $10,000,000, against $24,000,000 in the same months of last year, the average value per pound during the ten months of 1906 being about three-fourths of one cent per pound below the average for the same months of 1905, thus accounting for the decrease in value of this one item of shipments from the non-contiguous territory to the United States. The figures for the ten months indicate that the total commerce with the non-contiguous territories will amount to about $115,000,000, exclusive of approximately $10,000,000 worth of gold which will be received from Alaska during the full year, the gold figures for the ten months ending with April having aggregated over $8,500,000.

Summarizing commercial probabilities for the fiscal year which ends with the present month, it may be said that both imports and exports will certainly exceed those of any preceding year, and that the aggregate of trade with the non-contiguous territories will also exceed that of any preceding year; that the increase in imports occurs in all the great groups except foodstuffs; and that the increase in exports occurs in all the great groups, but especially in agricultural products and in manufactures.—*Trade Register.*

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THE UTILITY OF THE MODERN AUTOMOBILE.

A Wisconsin farmer wrote to an automobile agent in regard to the purchase of a machine, wherein he stated a part of his wants in this manner: "I should like to know if you think it feasible and how I could use the automobile to grind grain, run saw, and husk and shred corn with it." The reply being of a reassuring sort, the agent informing the rural genius that the work could be done by an automobile, a sale was effected. The agent, Alfred W. Norris by name, told where one of the motors in his plant had broken down, and the difficulty was met by jacking up one of the largest automobiles in the place. A tire was removed from a rear wheel and the rim wound with rope to secure a flat surface on which a belt would work. By this means, all machinery in the plant was operated for a week.—*The Automobile.*

REVIVE AMERICAN SHIPPING

The revival of American shipping for over-sea transportation means the employment of more than 500,000 persons in the various industries connected with shipping and its cognate intefests. Allowing that the labor of one man of this country is equal to $750 per annum (a figure based upon the highest statistical authority) we have the enormous sum of $375,000,000 to be earned by the working man of this country per annum. While these figures seem enormous and almost incredible, yet they are based upon conservative mathematical computation. It is impossible to calculate the resultant good to every industry from a revival of American over-sea traffic. It affects all classes of industries, arts, and even the farmer comes in for a large share of gains. This industry is a neglected and, to a large extent, an abandoned mine, which only needs re-opening to produce unlimited wealth and, with it, prosperity that shall endure as long as we shall foster and guard it.

We seldom stop to think how many articles and products enter into the construction and maintenance of the ship. Let us see: Of American indigenous products and materials, there are sixteen basic materials, with scores of minor materials of less importance. From the farm and plantation, ranch and garden, there are over fifty products that are used on vessels; while from the factory, nearly 150 articles are furnished to ships direct, many of these being renewed during the life of the ship. Scarce anything that is in every-day use on shore but is required on shipboard. The manufacturers of the country are now awake to the value of the ship as a source of direct trade for their goods, as well as a means of sending their output out into the markets of the world. The people at large want ship-building revived, and over-sea traffic restored and firmly established. And the only drawback to this desirable condition of maratime affairs appears to be in the efforts of the "blockaders" in Congress, for reasons not yet made public, to prevent the necessary legislation to this important end. But these obstructionists must understand that the voice of the people is for American-built ships for the American flag, and with these ships, this great nation proposes to enter into foreign trade and regain its former prestige on the watery highways of the world, cost what it may.—*American Shipbuilder.*

Chief William J. Carr, who is reorganizing the U. S. Consular Service.

EXPORTS OF AGRICULTURAL IMPLEMENTS

ARTICLES AND COUNTRIES	MAY—		ELEVEN MONTHS ENDING MAY—		
	1905.	1906.	1904.	1905.	1906.
Mowers and reapers, and parts of	$ 932,227	$1,771,560	$10,607,504	$9,871,372	$11,239,598
Plows and cultivators, and parts of	234,222	471,882	3,292,358	2,646,606	3,829,218
All other, and parts of	461,730	922,391	7,120,767	6,741,100	7,463,088
Total	$1,648,179	$3,165,833	$21,020,629	$19,259,078	$22,531,904
Exported to—					
United Kingdom	147,521	277,666	1,797,708	991,904	899,197
Belgium	19,805	34,718	222,637	161,910	252,891
France	103,777	549 511	2,783,629	2,639,442	2,648,585
Germany	118,742	278,622	1,466,997	1,130,860	1,867,810
Italy	22,432	66,942	129,418	227,392	351,338
Netherlands	77,739	70,617	215,510	192,446	570,122
Russia	237,738	462,237	3,297,639	3,727,360	3,778,611
Other Europe	375,674	436,549	1,275,291	1,101,691	1,673,180
British North America	144,828	318,776	2,914,909	1,787,483	2,006,495
Central American States and British Honduras	1,824	832	10,173	17,249	14,830
Mexico	35,935	71,567	341,902	331,666	504,469
Cuba	24,785	16 136	108,995	177,596	181,092
Other West Indies and Bermuda	929	643	10,084	11,703	11,575
Argentina	203,853	352,898	3,714,917	4,528,502	5,309,147
Brazil	7,894	9,333	45,032	143,100	91,677
Chile	6,562	5,131	230,947	243,464	296,712
Colombia	96	548	2,428	3,196	3,434
Venezuela	8	11	1,089	1,856	1,978
Other South America	15,962	38,426	200,689	148,036	297,313
British East Indies	1,550	1,691	60,279	47,910	56,357
British Australasia	56,883	78,453	1,324,394	1,045,877	770,168
Philippine Islands	3,656	9,431	27,420	17,859	115,573
Other Asia and Oceania	6,456	72,481	100,757	101,498	345,941
British Africa	31,661	21,465	642,837	373,242	346,735
All other Africa	1,869	11,159	91,915	105,836	136,674
Total	$1,648,179	$3,165,833	$21,020,629	$19,259,078	$22,531,904

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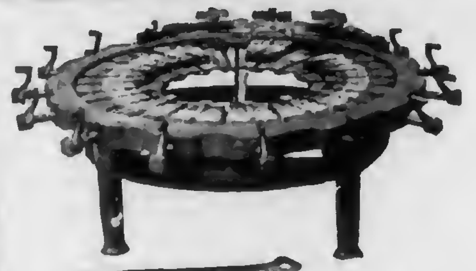

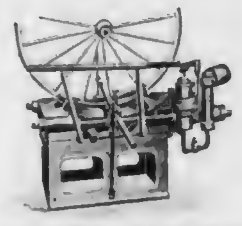

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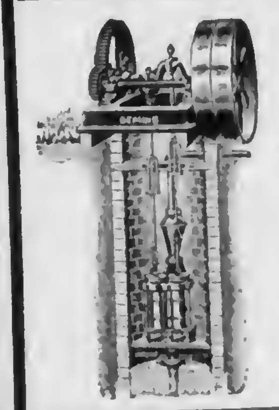

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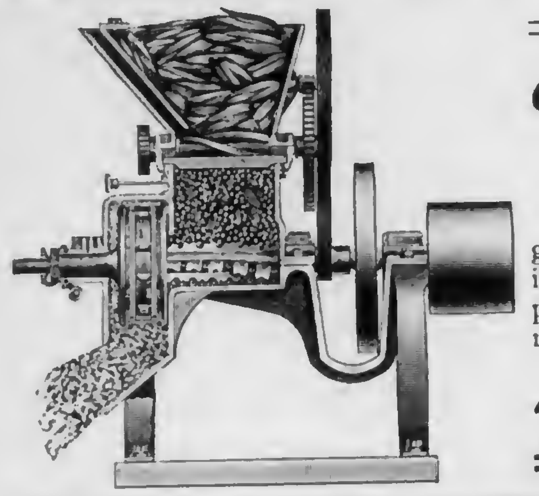

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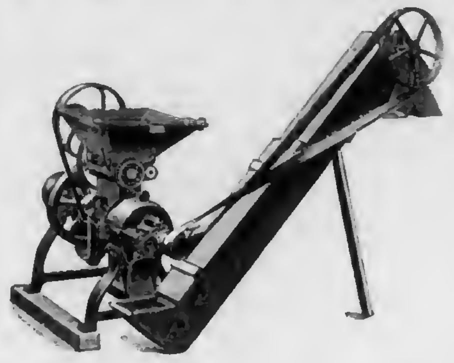

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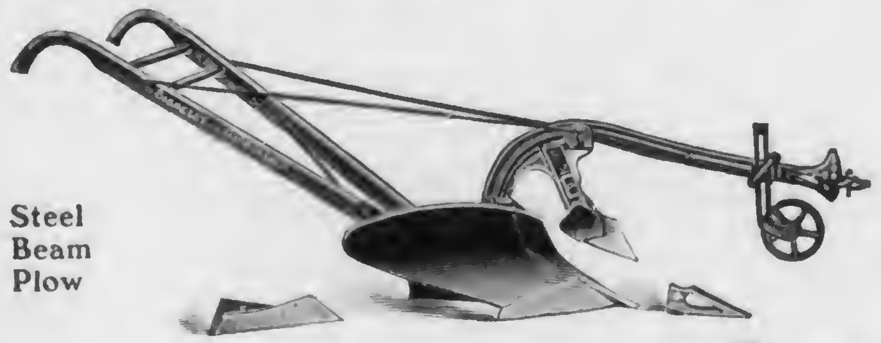

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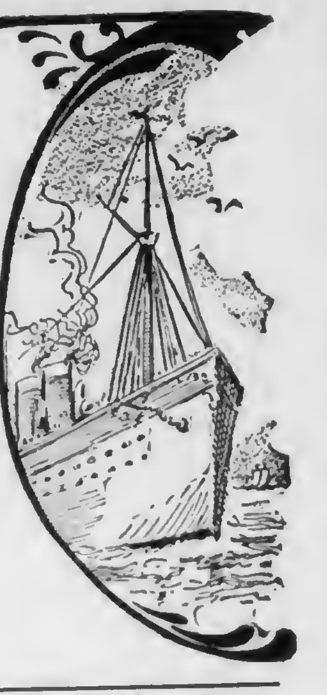

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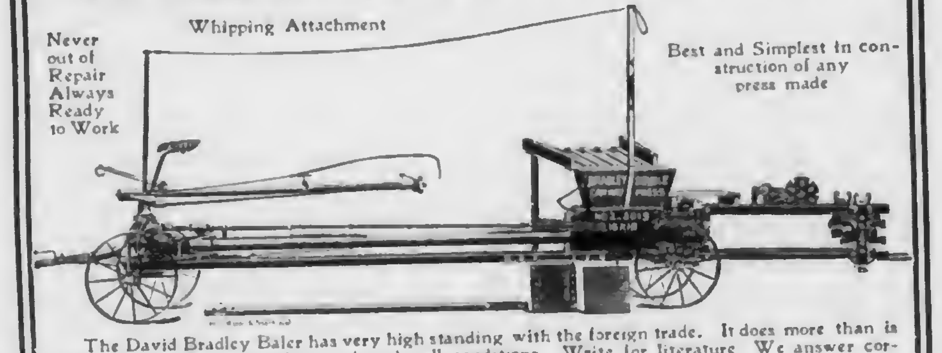

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and for this reason a plow that is a rapid seller

The farmer appreciates it because it is always ready with a fresh cutting edge. The upper edge is always being sharpened while the lower one is being used. The matter of reversing them is very quick and simple—no wrench being required, and there is no necessity for turning the plow over.

We highly recommend this Plow for Clay, Gravel, Stone or a Hard Pan Soil

For Further Particulars and Prices address

South Bend Chilled Plow Co. SOUTH BEND INDIANA

Lawn Mowers

FOR HORSE *and* HAND USE

Adapted for all markets of the world.

Established 1870

CHADBORN & COLDWELL MFG. CO.

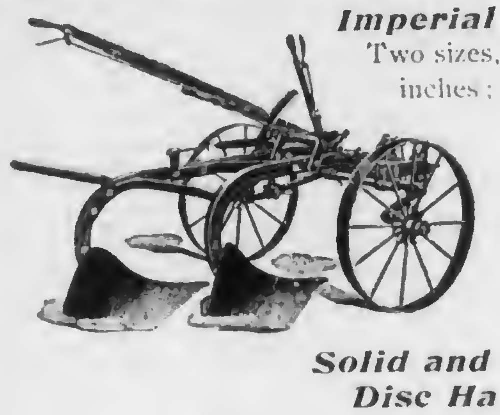
NEWBURGH
N. Y.
U. S. A.

SEND FOR CATALOGUE AND PRICES

IMPERIAL LINE IMPLEMENTS

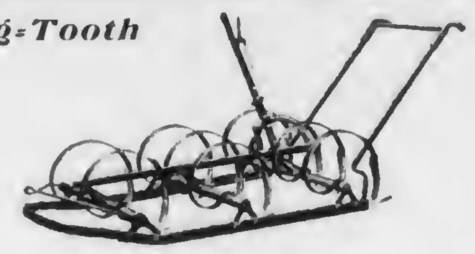
Imperial Stark Gang Plow
Two sizes, cutting 24 inches and 28 inches; all soft centre steel.

Specially constructed for export trade.

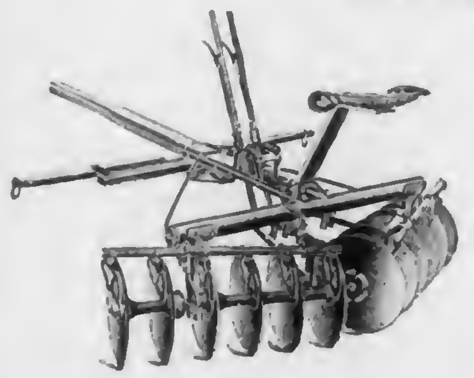


Imperial Spring-Tooth Cultivator

Specially designed for working in vineyards.

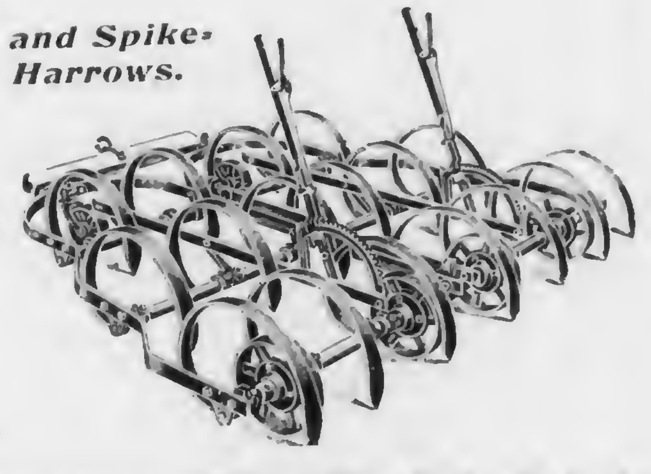


Solid and Cut-Out Disc Harrows.



Spring and Spike-Tooth Harrows.

Several sizes and styles.

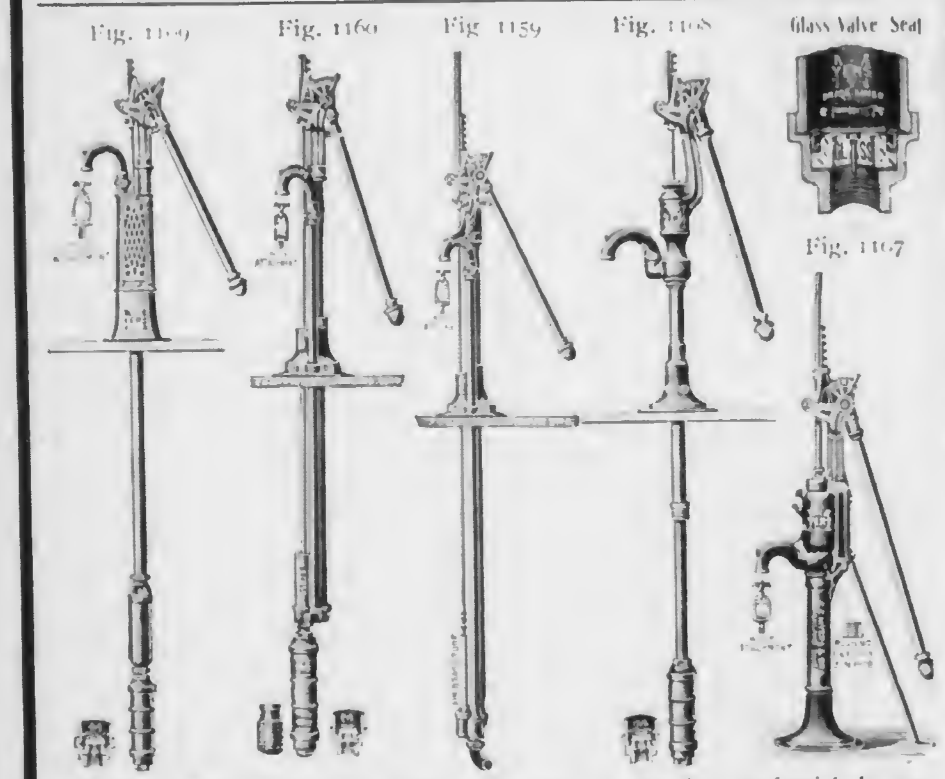


Full Line Single and Double Furrow Plows, Cultivators, Etc.

CATALOGUE, No. 104 Free on Application.

THE BUCHER & GIBBS PLOW CO. B-21 Produce Exchange, NEW YORK, N. Y., U. S. A.
Factory: CANTON, OHIO.

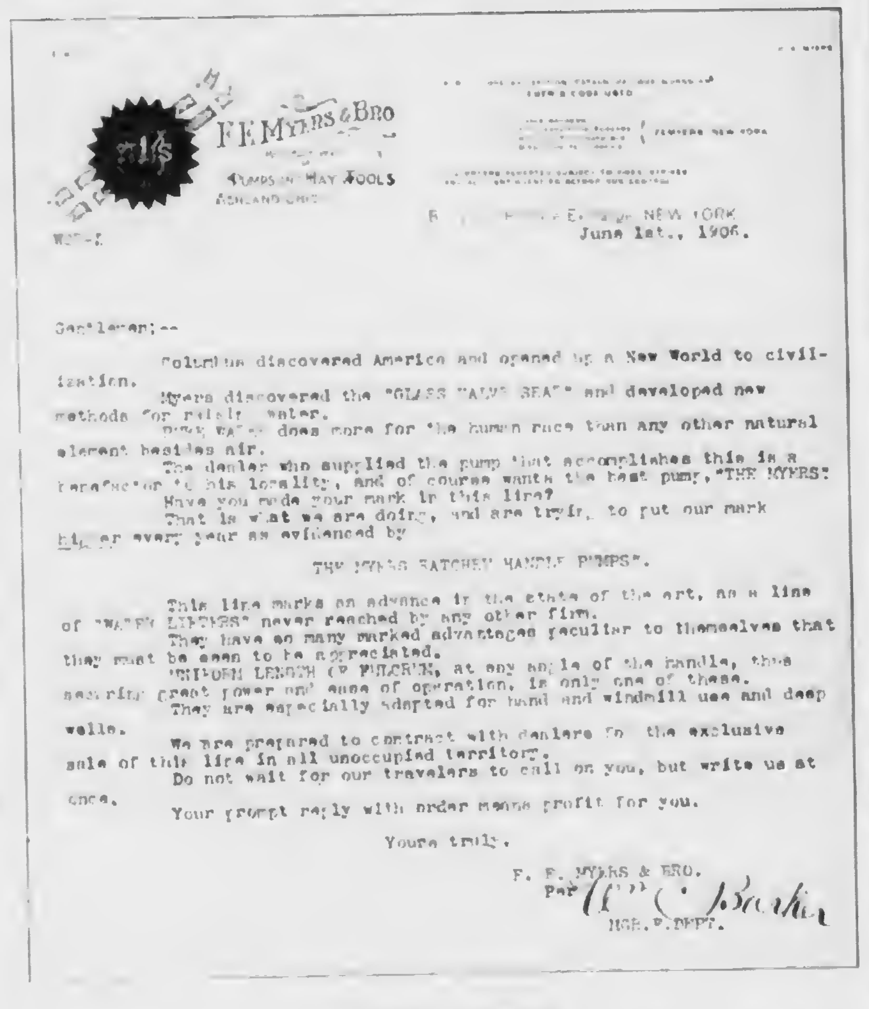
MYERS RATCHET HANDLE PUMPS



They are adapted for deep well use, or can be used with larger cylinder, pumping greater quantity of water for wells of the same depth, on which a smaller cylinder is used in connection with the ordinary pump.

F. E. MYERS & BRO. ASHLAND OHIO

7-0-n



F. E. Myers & Bro.
Pumps and Hay Tools
Ashland Ohio

B 21 Produce Exchange NEW YORK
June 1st., 1906.

Gentlemen:--

Columbus discovered America and opened up a New World to civilization.

Myers discovered the "GLASS VALVE SEAT" and developed new methods for raising water.

Pure water does more for the human race than any other natural element besides air.

The dealer who supplied the pump that accomplishes this is a benefactor to his locality, and of course wants the best pump, "THE MYERS".

Have you made your mark in this line?

That is what we are doing, and are trying to put our mark higher every year as evidenced by

"THE MYERS RATCHET HANDLE PUMPS".

This line marks an advance in the state of the art, as a line of "WATER LIFTERS" never reached by any other firm.

They have so many marked advantages peculiar to themselves that they must be seen to be appreciated.

UNIFORM LENGTH OF FULCRUM, at any angle of the handle, thus securing great power and ease of operation, is only one of these.

They are especially adapted for hand and windmill use and deep wells.

We are prepared to contract with dealers for the exclusive sale of this line in all unoccupied territory.

Do not wait for our travelers to call on you, but write us at once.

Your prompt reply with order means profit for you.

Yours truly,

F. E. MYERS & BRO.
Per W. C. Barker
MGR. F. DEPT.

EXPORT OFFICE
B 21 Produce Exchange, New York, U. S. A.

Directory for Buyers.

The names of firms given below, together with the goods mentioned, are arranged for the convenience of buyers. Their products are given in the English, French, Spanish and German languages. These establishments are among the leading ones in the United States, are strictly reliable, have extensive facilities and are prompt in transacting business. They fully understand the export trade and carefully look after all foreign orders. The EXPORT IMPLEMENT AGE is kept on file in their offices, and any mention of the journal will be an incentive to even greater promptness on their part in obliging you. Inquiries from foreign buyers desiring information relative to American agricultural machinery or implements addressed to them will be given careful and prompt attention. Write in any language you prefer.

Rèpertoire à l'Usage des Acheteurs

Les maisons ci-dessous et les produits mentionnés ont été classés dans cet ordre pour la commodité des acheteurs de langues anglaise, française, espagnole et allemande. Ces établissements sont parmi les principaux des Etats-Unis, ils sont absolument sérieux, ils possèdent de grandes facilités, sont prompts en affaires. Ils connaissent à fond le cemmerce d'exportation et donnent tous leurs soins à l'exécution des commandes qui leur viennent de l'étranger. Ils conservent une collection de l'EXPORT IMPLEMENT AGE dans leurs bureaux, et la simple mention de ce journal stimulera davantage encore, si possible, leur zèle et leur promptitude à obliger leurs clients. L'EXPORT IMPLEMENT AGE, de son côté, donnera une prompte attention aux demandes de ronseignements sur machines et instruments agricoles américains, que peuvent lui adresser les acheteurs de l'étranger. Ecrire dans la langue que l'on préfere.

Directorio para los Compradores.

Los nombres de los artículos que fabrican las firmas ó casas mencionadas á continuación se dan, para conveniencia de los compradores, en los idiomas inglés, francés, español y alemán. Esos establecimientos, que se cuentan entre los principales de los Estados Unidos, están completamente acreditados, son dignos de toda confianza y tienen las mayores facilidades para ejecutar y despachar con prontitud todos sus negocios. Conocen á fondo el comercio de exportación y atienden con el mayor esmero à todos los pedidos que reciben del extranjero. Los números del EXPORT IMPLEMENT AGE se coleccionan en sus oficinas, y toda referencia á esta revista es un incentivo para atender con mayor prontitud aun á vuestros requerimientos. Todos los informes que pidan los compradores del extranjero serán suministrados á la mayor brevedad por esos fabricantes sobre la maquinaria agrícola é instrumentos de labranza americanos. Escribidles en cualquier idioma que prefiráis.

Firmen-Verzeichnis für Käufer.

Die Erzeugnisse der unten genannten Firmen sind für die Bequemlichkeit ausländischer Käufer in englischer, französischer spanischer und deutscher, Sprache hier wiedergegeben. Genannte Etablissemente gehören zu den bedeutendsten in den Vereinigten Staaten; sie sind in jeder Weise zuverlässig, besitzen ausgedehnte Facilitäten und erfreuen sich eines ehrenvollen Rufes. Alle von ihnen unternommenen Geschäftstransaktionen werden in promptester Weise zur Ausführung gebracht. Jedes hierin genannte Haus ist mit dem Exporthandel wohl vertraut und um auswärtige Aufträge eifrig bemüht. Das EXPORT IMPLEMENT AGE wird von all diesen Firmen gelesen, dient ihnen sozusagen als Informations-Register und dürfte somit eine Angabe dieses Journals bei event. Waarenbestellung nur zur Anregung grösserer Promptheit dienen, um D. Käufern in bestmöglicher Weise entgegenkommen zu können. Jede auswärtige Anfrage hinsichtlich amerikanischer landwirthschaftlicher Maschinen und Geräthe wird nicht allein prompte, sondern auch stets sorgfältige Aufmerksamkeit erhalten. Interessenten können sich jeder beliebigen Sprache zur Korrespondenz bedienen.

Ambulances
Carros de hospital
Krankenwägen (Ambulanzen)

Baling Presses (Hay, Straw, Etc.)
Presses à foin, paille, etc.
Prensas de Embalar (Heno, Paja, etc.)
Ballen Pressen (für Heu, Stroh, u. s. w.)

Bradley Mfg. Co., David, Bradley, Ill. 1
Collins Plow Co., Quincy, Ill. 29
Ertel Co., George, Quincy, Ill. 6

Beet Implements (Planting, Cultivating and Harvesting)
Betteraves (Instruments pour la culture des)
Instrumentos para el Cultivo de la Remolacha (Sembradoras, Cultivadoras y Cosechadoras)
Rübengeräte (zum Pflanzen, Pflügen und Ernten)

Moline Plow Co., Moline, Ill. 6

Binders, Self (Wheat, Rye, Oats, etc.)
Lieuses Automatiques (Blé, Orge, Avoine, etc.)
Agavilladoras Automáticas (Trigo, centeno avena, etc.)
Selbstbindemaschinen (für Weizen, Roggen, Hafer u. s. w.

Boilers.
Chaudières.
Calderas.
Kessel.

Leffel & Co., James, Springfield, Ohio 29

Bolts and Nuts.
Boulons et écrous.
Pernos y Tuercas.
Bolzen und Muttern (Mutterbolzen)

Columbus Bolt Works, Columbus, Ohio 36

Brakes (Vehicle)
Retrancas (Vehículo)
Frein (de Voiture)
Bremsen (für Fahrzeuge)

Potter Co., The Morgan, Fishkill on Hudson, N. Y. . . 3

Carriages
Voitures
Carruajes
Kaleschen und Wagen

Dapson & Wolf, Oneida, N. Y. 3
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Carriage Cloth
Wagentuch
Paño de carruaje
Drap de Voiture

Fairfield Rubber Co., The, Fairfield, Conn. 5

Carriage Materials
Articles pour voitures
Materials for Carriages
Wagenmaterial

Carts (Riding)
Charrettes (à siège)
Carretones (de Montar)
Frachtkarren (Reitkarren)

Dapson & Wolf Oneida, N. Y. 8

Cider and Wine Presses
Pressoirs à vin et à cidre
Prensas para Hacer Cidra y Vino
Kelterapparate für Wein und Apfelwein

Lansing Wheelbarrow Co., Lansing, Mich. . . . .

Clothes Washing Machines
Linge (machines à laver le)
Máquinas de Savar Ropa
Wäsche Waschmaschinen

"1900" Washer Co., Binghamton, N. Y. 31

Coal Cars
Charbon (wagons pour)
Carros para Carbón de Piedra
Kohlenwaggons

Lansing Wheelbarrow Co., Lansing, Mich. 29

Coal Shutes
Charbon (Dalles à)
Canales para Descargar Carbón de Piedra
Kohlen Lade-Rinnen

Lansing Wheelbarrow Co., Lansing, Mich. 29

Corn Crushers
Mais (Concasseurs de)
Trituradoras de Maiz
Mais Zerquetschmaschinen

Sprout, Waldron & Co., Muncy, Pa. 8

Corn Harvesters
Mais (Moissonneuses de)
Cosechadoras de Maiz
Mais Erntemaschinen

Standard Harrow Co., Utica, N. Y. 3

Corn Huskers and Shredders
Mais (Instruments à enlever et à déchirer les bractées du)
Desgranadoras y Picadoras de Maiz
Mais Enthülsemaschinen und Auswerfapparate

Bradley Mfg. Co., David, Bradley, Ill. 1

Corn Planters (Hand)
Mais (Semoirs de, à main)
Sembradoras de Maiz (A Mano)
Maispflanzer (für Handbetrieb)

Ohio Cultivator Co., The, Bellevue, Ohio 31

Corn Planters (Horse)
Mais (Semoirs de, à cheval)
Sembradoras de Maiz (para Caballo)
Mais Pflanzmaschinen (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill. . . . .
Moline Plow Co., Moline, Ill. . . . .

Corn Shellers (Hand)
Mais (Egrenoirs de, à main)
Descascaradoras de Maiz (de Mano)
Mais Pflanzmaschinen (für Handbetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Corn Shellers (Power)
Mais (**Egrenoirs de**), á énergie mecanique
Descascaradoras de Maiz (para Fuerza mecánica)
Mais Pflanzmaschinen für Pferdebetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Cotton Planters
Coton (Semoirs de)
Sembradoras de Algodon
Baumwoll Pflanzmaschinen

Ohio Cultivator Co., The, Bellevue, Ohio	36

Cultivating Machinery (Hand and Garden)
Culture du sol (Intruments pour la), á main et pour le jardin
Maquinaria Cultivadora (de Mano y para Huerta)
Garten Pflüge (für Handbetrieb)

Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Cultivating Machinery (Horse and Field)
Culture du sol (Instruments pour la), à cheval et pour le champ
Maqninaria Cultivadora (de Caballo y para el Campo)
Bodenkultur Geräte (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill.	1
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Engines and Boilers (Stationary)
Machines à vapeur et Chaudières (fixes)
Máquinas de Vapor y Calderas (**Fijas**)
Maschinen und Kessel (Stationär)

Leffel & Co., James, Springfield, Ohio	29

Engines (Traction and Portable)
Machines à vapeur (Pour la traction et transportables)
Máquinas (De Tracción y Portátiles)
Traktions- oder Zugmaschinen und Lokomobilen

Feed and Ensilage Cutters
Coupe-aliments, coupe-ensilage
Cortadora de Forraje y Ensilaje
Futter- und Grünfutter (Ensilage) **Schneidemaschinen**

Marseilles Mfg. Co., Marseilles, Ill.	4
Silver Mfg. Co., Salem Ohio	35

Feed Mills
Moulins pour aliments
Molinos de Frorraje ó Pienso
Futtermühlen

Sprout, Waldron & Co., Muncy, Pa.	3

Files (Letter and Card)
Systèmes de classification (lettres et cartes)
Guarda-Cartas y Tarjetas
Skripturenordner (für Briefe und Karter)

Forgings (Carriage)
Pièces forgées (Voiture)
Forjaduras (para carruajes)
Schmiedereien (Kaleschen-)

Gardening Tools (Hand)
Jardinage (**Outils de**) à main
Herramientas de Hortelano (de Mano)
Gärtnerei Handwerkzeug

Grain Cleaning Machinery (Rice, Coffee, Grain, Etc.)
Grains (**Machines à nettoyer les**): riz, café, grain, etc.
Maquinaria pare Limpiar Granos (Arroz, Café, Granos, Etc.)
Getreide Reinigungsmaschinen (für Reis, Kaffee, Korn, u. s. w.)

Sprout, Waldron & Co., Muncy, Pa.	5

Grain Drills
Grains (**Semoirs de**)
Sembradoras de Granos
Drillmaschinen

Monitor Drill Co., Minneapolis, Minn.	31
Superior Drill Co., Springfield, Ohio	5

Grain Grinding Mills
Grains (**Moulins à moudre les**)
Molinos para Granos
Schrotmühlen

Flint & Walling Mfg. Co., Kendallville, Ind.	3
Kelly Co., The O. S., Springfield, Ohio	36
Marseilles Mfg. Co., Marseilles, Ill.	4
Sprout, Waldron & Co., Muncy, Pa.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Hand Carts (Push)
Charrettes à bras
Carretillas de Mano (de Empuje)
Hand-Schiebekarren

Bradley Mfg. Co., David, Bradley, Ill.	1
Deming Co., The, Salem, Ohio	35
Lansing Wheelbarrow Co., Lansing, Mich.	29

Hand Tools (Shovels, Rakes, Hoes, Scythes, Forks, Etc.)
Outils à main (Pelles, râteaux, houes, faux, fourches, etc.)
Herramientas de Mano (Palas, Rastrillos, Azadones, Guadañas. Horquillas, etc.)
Handwerkzeug (Schaufeln, Rechen, Haken, Sensen, Gabeln, u. s. w.

Harrows (Disc, Spring-Tooth and Spike-Tooth)
Herses (à disques, à dents élastiques, à dents droites)
Mielgas ó Rastrillos (de Disco, con Dientes de Resorte y Otros)
Eggen (mit Scheiben-, Federzahn- und Speichenzahn-Vorrichtung)

Bradley Mfg. Co, David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Loaders
Foin (**Chargeuses de**)
Cargadoras de Heno
Heu Auflader

Marseilles Mfg. Co., Marseilles, Ill.	4

Hay Presses
Foin (**Presses à**)
Prensas para Heno
Heu Pressen

Bradley Mfg. Co., David, Bradley, Ill.	1
Collins Plow Co., Quincy, Ill.	29
Ertel Co., George, Quincy, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Rakes
Foin (**Râteaux à**)
Rastros para Heno
Heu Rechen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6

Hay Tools (For Handling Hay)
Foin (**Outils** pour la manipulation du)
Herramientas para Heno (para Manipular el **Heno**)
Heubearbeitungs-Apparate und Werkzeuge

Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Hods (Steel and Wood)
Auges (Acier et bois)
Artesas de Cargar (de Acero y de Madera)
Tünchkübel (Mörteltröge, aus Stahl und Holz)

Lansing Wheelbarrow Co., Lansing, Mich.	29

Implement Parts (Rake, Teeth, Knife Sections, Etc.)
Pièces de rechange (Dents de râteaux, couteaux de faucheuses, etc.)
Partes de Instrumentos (Dientes de Rastrillo, Secciones de Cuchilla, Etc.)
Theile von Landwirthschaftsgeräthen (Rechenzähne, Messertheile, u. s. w.)

Incubators
Conveuses artificielles
Incubadoras
Brutmaschinen (Inkubatoren)

Ertel Co., George, Quincy, Ill.	6

Lawn Mowers
Tondeuses de gazon
Segadoras ó Cortadoras de Césped
Rasen Mähmaschinen

Clipper Lawn Mower Co., Dixon, Ill	5
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y	1

Leather (Imitation)
Leder (Imitation)
Cuero (Imitación)
Cuir (Imitation)

Fairfield Rubber Co., The, Fairfield, Conn.	5

Machine Tools
Machines-outils
Herramientas Mecánicas
Maschinen-Werkzeug

Silver Mfg. Co., Salem, Ohio	35

Mowers.
Faucheuses.
Segadoras.
Mähmaschinen.

Mills (Corn and Hominy)
Moulins (pour maïs et bouilie)
Molinos (para Moler Maiz Fino y Grueso)
Mühlen (für Getreide und indianisches Reis, Hominy)

Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Oil Cloth
Toile Cirée
Wachstuch

Plows (Walking, Riding and Disc)
Charrues (ordinaires, à siège, à disques)
Arados (de Caminar, de Montar y de Disco)
Pflüge (Geh-, Fahr- und Scheibenpflüge)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
South Bend Chilled Plow Works, South Bend, Ind.	1
Standard Harrow Co., Utica, N. Y.	3

Potato Machinery
Pommes de terre (Machines pour la culture des)
Maquinaria para Patatas
Kartoffel-Maschinen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Pumps, Hand and Power (Lift, Force and Spray)
Pompes, à main, et à énergie mécanique (Pompes aspirantes, foulantes, pulvérisatrices)
Bompas de Mano y para Fuerza Mecánica (Aspirantes, de Forzar y de Rociar)
Pumpen, Hand- und Kraftpumpen (Hebe-, Druck- und Besprengungs-Pumpen)

Deming Co., The, Salem, Ohio	35
Flint & Walling Mfg Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Reapers.
Moissonneuses.
Cosechadoras
Getreide-Mähmaschinen.

Rollers (Field or Road)
Rouleaux (pour champs et pour routes)
Rodillos (para Campo y para Caminos)
Feld- und Weg-Walzen

Bradley Mfg. Co., David, Bradley, Ill.	1
Lansing Wheelbarrow Co., Lansing, Mich.	29
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Rubber Goods
Articles de caoutchouc
Articulos de Caucho
Gummiwaaren

Rubber Tires
Gummireifen
Bandes de roues en caoutchouc
Llantas de Caucho para Ruedas

Morgan & Wright, Chicago, Ill.	1

Scrapers (Road)
Ratissoires (pour routes)
Dragas (para Caminos)
Strassen Scharr-Maschinen (Strassen-Ebener)

Standard Harrow Co., Utica, N. Y.	3

Seeders, Broadcast (Grain and Grass)
Semoirs pour semer à la volèe (Grain et graminèes)
Máquinas de Sembrar Semillas al Vuelo (Granos y Semilla de Yerbas)
Breitsämaschinen (für Getreide und Gras)

Sharpeners and Grinders
Machines à remoudre et à aiguiser
Afiladoras y Amoladoras
Schärfe- und Schleif-Apparate

Sleighs
Traineaux
Trineos
Schlitten

Dapson & Wolf, Oneida, N. Y.	

Sprayers and Nozzles
Instruments d'arrosage
Rociadoras y Boquereles
Besprengungs-Spritzen und Uebernasen

Deming Co., The, Salem. Ohio	35
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
Standard Harrow Co., Utica, N. Y.	3

Stalk Cutters
Coupe-chaume
Cortadoras de Tallos
Stengel Abschneider

Street Sprinklers
Arrosage des rues (Tonneaux pour l')
Regadoras de Calle
Strassen Bespreng-Wagen

Studebaker Bros. Mfg. Co., South Bend, Ind.	

Sugar Cultivating Implements
Sucre (**Instruments pour la culture de la canne à**)
Instrumentos para el Cultivo Azucarero
Zucker-Anbau Geräthe

Threshing Machinery
Machines à battre
Maquinaria de Trillar
Dresch Maschinen

Tire Setters
Machines à fixer les bandes de roues
Máquinas de Poner Llantas
Maschinen zum Aufsetzen von Gummireifen

Standard Tire Setter Co., Keokuk, Iowa	36

Tread Powers (Horse, Dog, Sheep, Etc.)
Machines à utiliser l'énergie de la marche (Cheval, Chien, Mouton, etc.)
Motores de Pisada (para Caballo, Perro, **Carnero**, etc.)
Kraft-Tretmaschinen (Pferde, Hunde, Schafe. u. s. w.)

Trucks (Hand Warehouse)
Trucs (Emmagasinage à bras)
Carretillas de Mano para almacén
Transport Handwagen (für Waarenhäuser)

Lansing Wheelbarrow Co. Lansing, Mich.	29

Wagons (Business)
Charettes (d'affaires)
Carros (para negocios)
Wägen (Geschäftswägen)

Wagons and Buck-Wagons
Charrettes et charrettes à lessive
Carretones y Carretas
Wägen und Bockwägen

Ohio Valley Wagon Co., The, Marietta, Ohio . . . . . .

Wagons and Carts (Farm)
Wagonnets et charrettes (Ferme)
Carretones y Carretas (para Hacienda)
Landwirthschaftliche Wagen und Karren

Lansing Wheelbarrow Co., Lansing, Mich. 29
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Weeders
Sarcloirs mecaniques
Desyerbadoras
Jäte Maschinen

Standard Harrow Co., Utica, N. Y. 3

Well Tools and Drilling Machinery
Outils pour puits et machines à forer
Instrumentos para Abrir Pozos y Maquinaria para Horadar
Brunnen-Werkzeug und Bohr-Maschinen

Flint & Walling Mfg. Co., Kendallville, Ind. 3

Wheelbarrows
Brouettes
Carretillas
Schiebekarren

Lansing Wheelbarrow Co., Lansing, Mich. 29

Wheels (Carriage)
Roues (Voiture)
Ruedas (Carruaje)
Räder (Kaleschen und Wagen)

Wheels and Wheel Materials
Roues et articles pour roues
Ruedas y Materiales para Ruedas
Räder und Rädermaterialien

Windmills (Towers and Tanks)
Moulins à vent (Tours et réservoirs)
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Maquinaria para Aserar Madera
Holzsäge-Maschinen

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Columbus Bolt Works, Columbus, Ohio 36

Dapson & Wolf, Oneida, N. Y. 3
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"1900" Washer Co., Binghamton, N. Y. 31

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Sprout, Waldron & Co., Muncy, Pa. 3
Standard Harrow Co., The, Utica, N. Y. 3
Standard Tire Setter Co., Keokuk, Iowa 35
Studebaker Bros. Mfg. Co., South Bend, Ind. . . . 36
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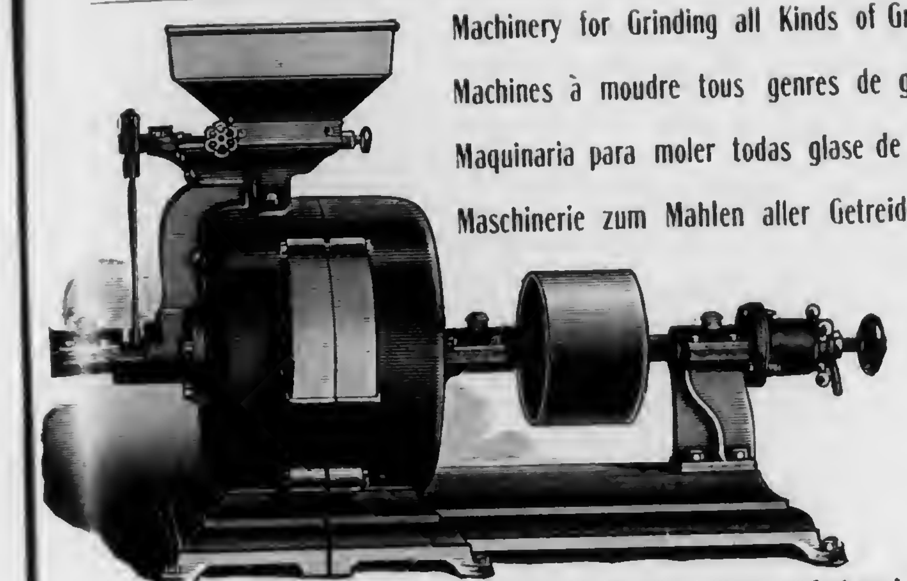


Machinery for Grinding all Kinds of Grain

Machines à moudre tous genres de grains

Maquinaria para moler todas glase de granos

Maschinerie zum Mahlen aller Getreidesorten

Write for one of our booklets which gives a full description of French Burr and Attrition, Feed and Meal Mills, Cotton Seed and Linseed Oil Cake Mills, Emery Rock Mills, Cotton, Ear and Ore Crushers, Magnetic Separators, Corn Shellers, etc.

Ecrivez pour un pamphlet contenant description détaillée de moulins à meules de France et à frottement, de moulins pour grains de cotton et de tourteaux de lin, de moulins à pierre d'émeri, de broyeurs d'épis et de minérais, de moulins magnétiques, d'écosseurs, etc.

Escríbasenos pidiendo uno de nuestros libritos, en que se da una completa descripción de nuestros Molinos de Piedra Francesa y de Roce, para Pienso y para Harina, Molinos de Semillas de Algodón, y para moler Tortas de Aceite de Semillas de Linaza, Molinos para Roca de Esmeril, Trituradoras de Algodón, Mazorcas y Minerales, Separedoras Magnéticas, Desgranadoras de Maiz, etc.

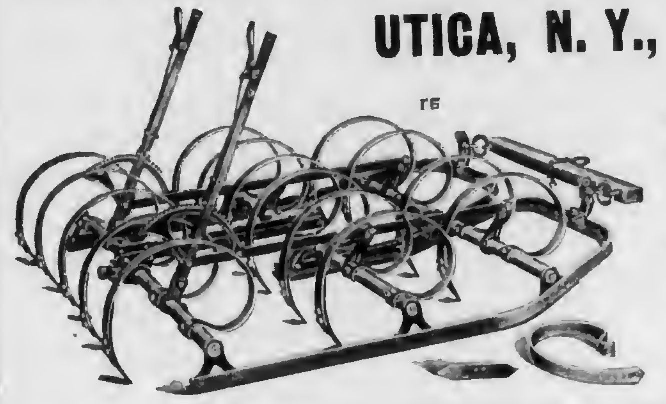
Man verlange eines unserer Büchlein, das volle Beschreibung unserer französischen Mahlsteine und Reibevorrichtung enthält, wie auch aller Futter-Vorrichtungen, Mehl-Mühlen, Baumwollensaamen- und Leinölsaamen Kuchen-Mühlen, Schmirgel-Bergmühlen, Baumwollen-, Aehren- und Erzzerstückelungs-Maschinen, magnetische Separatoren, Korn-Enthülsemaschinen, u. s. w.

SPROUT, WALDRON & CO.

Drawer M. MUNCY, PA., U. S. A.

The Standard Harrow Co.

UTICA, N. Y., U. S. A.



ABERDEEN, SR. SPRING-TOOTH HARROW

Unequalled Strength

No Clogging

Reversible Points on Teeth

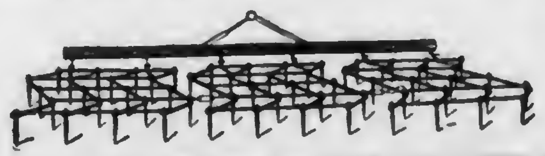
THE STANDARD LINE includes one and two-section Spring-Tooth Harrows and all styles and sizes of Spike-tooth and Disc Harrows, Cultivating Implements, Potato Harvesters, Potato Sprayers, etc., and is one of the most favorably known lines in the leading agricultural countries.

We guarantee prompt service for all export orders. Our factory is only five hours' ride from New York City.

WRITE IN YOUR OWN LANGUAGE FOR CATALOGUE F

ZIG ZAG STEEL SPIKE-TOOTH HARROW

20-Tooth Sections
½-Inch Teeth



EASY RIDING

This two-wheeler is our leading specialty for export.

We equip it with **RUBBER TIRES**, if desired, put on with two wires. The work, like the job itself, is sold under our positive guarantee.

LET US SEND YOU THE PRICES

Dapson & Wolf

ONEIDA, NEW YORK, U. S. A.

WHOLESALE MAKERS OF

FINE CARRIAGES

POTTER'S SPRING BRAKE BLOCKS . . .

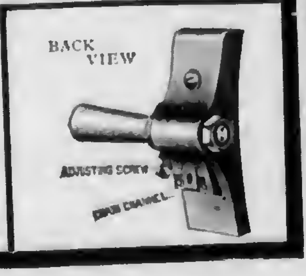
Very substantial. Over 25,000 sets in use throughout the United States. We make them for Steel Tires, and they are especially adapted for Rubber Tires.

Will Not Injure Rubber Tire a Particle

We solicit your correspondence

The Morgan Potter Company

FISHKILL - ON - HUDSON, N. Y., U. S. A.



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"STAR" WINDMILLS

designed for the heavy and varied work required of them abroad. The "STAR" is built in all sizes, thoroughly galvanized, has ball bearings and is the easiest running Mill made.

"STAR" PUMPING MILL

For many years we have been exporting Windmills and know what is needed to meet all requirements and please our foreign friends. We understand how these goods should be packed for safe delivery, and the packing receives our most careful attention. With all the required parts at hand and properly fitted it facilitates the assembling and erecting of the Mills.

We build **Hand and Windmill Pumps** of various designs, all sizes of **Pine, Cypress** and **Galvanized Steel Tanks, Galvanized Steel Towers** any height, **Power Windmills** for grinding feed and running light machinery and **Steel Substructures** all heights, to support Tanks of any capacity.

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New York Office, 96 Wall Street, New York, U. S. A.

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Wagons (Business)
Charettes (d'affaires)
Carros (para negocios)
Wägen (Geschäftswägen)

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Wägen und Bockwägen

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Wagonnets et charrettes (Ferme)
Carretones y Carretas (para Hacienda)
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Lansing Wheelbarrow Co., Lansing, Mich. 29
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Weeders
Sarcloirs mécaniques
Desyerbadoras
Jäte Maschinen

Standard Harrow Co., Utica, N. Y. 8

Well Tools and Drilling Machinery
Outils pour puits et machines à forer
Instrumentos para Abrir Pozos y Maquinaria para Horadar
Brunnen-Werkzeug und Bohr-Maschinen

Flint & Walling Mfg. Co., Kendallville, Ind. 8

Wheelbarrows
Brouettes
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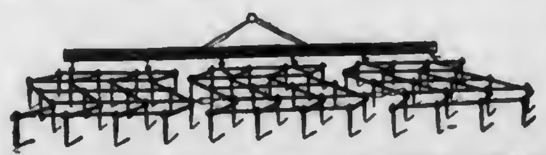

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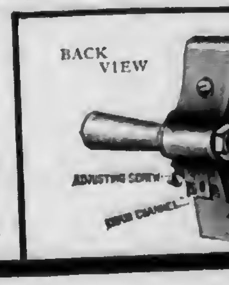

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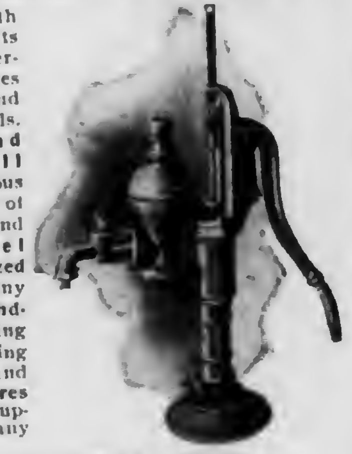

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INTENTIONAL SECOND EXPOSURE

WOOD SAWS.
Steel or wood frames.
TWO HOLE HAND CORN SHELLER.
FEED GRINDERS
Sweep or geared.
HAND SHELLER
FARM FANNING MILLS.
HORSE POWERS.
1 to 12-horse.
SPEED JACKS.
NEW PROCESS DUSTLESS CYLINDER CORN SHELLER
For husked or unhusked corn, made in three sizes, capacities ranging from 400 to 1,200 bushels per hour.
CYCLONE COMBINATION FORCE FEED CORN SHELLER
All sizes and styles for horse power or engine.
PUMPING JACKS

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AMERICAN manufactures are not only in demand, but in many cases are given the preference in foreign countries. Especially is this true of Agricultural Machinery, Farm Supplies, Vehicles and Hardware Specialties. If you are manufacturing any of these goods voice it abroad and make the world your field. You can do it just as easily as you can secure home trade if you'll talk through the

Export Implement Age

IT REACHES ALL FOREIGN COUNTRIES
WRITE US FOR ADVERTISING RATES

Superior Grain Drills

Semoirs Supérieurs de Grains. Manufacturés en une grande variété de dimensions pour Grains seulement on pour Grains et Fertilisants mélangés, avec Disque, Houe et Soc creusant les sillons. Nous manufacturons des modèles spéciaux de Semoirs de Grains pour l'Europe, l'Australie, l'Amerique du Sud et le Sud de l'Afrique. Demandez les Catalogues descriptifs illustres.

Sembradoras Superiores de Granos. Se fabrican de muchos tamaños de sembrar Granos sóla ó combinada con Fertilizador, con surcadores de Disco, de Azadón ó Zapatillas. Nosotros fabricamos Sembradoras de tipos especiales para Europa. Australia, Sud América y el Africa del Sur. Envíese por un Catálogo descriptivo ilustrado.

"Superior" Getreiderillen. Wird in vielseitiger Auswahl von Grössen hergestellt: Einfache Getreiderillen und Kombinationen von Getreide und Pflugrillen mit Scheiben, Hauen und Schuh-Lockerungs Vorrichtungen. Wir fabriziren besondere Arten von Getreiderillen für Europa, Australien, Süd-Amerika und Süd-Afrika. Man verlange illustrirte beschreibende Kataloge.

We manufacture special types of Grain Drills for Europe, Australia, South America and South Africa

Made in a large variety of sizes in Plain Grain and combined Grain and Fertilizer, with Disc, Hoe and Shoe furrow openers

THE SUPERIOR DRILL CO., Springfield, O., U.S.A.

THE FAIRFIELD RUBBER CO.

Manufacturers of

Carriage Cloth, Imitation Leather, Etc.

FAIRFIELD, CONN., U. S. A.

We believe you will find our cloths more desirable fabrics than have been presented for your consideration.

Not only do we offer our lines as superior to any, but some are special with us.

We warrant all our goods in every manner, and in all climates.

All we ask is a trial of our productions, as we know the result will be in our favor.

Our many years' connection with the foreign trade places us in a position to know fully as to their wants, and the large orders we receive from that field convinces us that the high standard at which we have kept our goods is appreciated. We refer with pleasure to any leading Export house in New York as to the merit of our cloths.

Send for quotations through any Export house, or write us direct.

When ordering goods in our line, ask for goods made by

The Fairfield Rubber Co.

GLIPPER LAWN MOWER GO. DIXON ILLINOIS

THE MOWER that will **kill all the Weeds in your Lawns.** If you keep the weeds cut so they do not go to seed, and cut your grass without breaking the small feeders of roots, the grass will become thick and the weeds will disappear.

THE CLIPPER WILL DO IT

Ask Your Dealer for Them

The Export Implement Age

is an independent journal devoted exclusively to the Export Trade in Agricultural Machinery, Pumps, Wind Mills, Farm Tools, Dairy Supplies and Hardware Specialties.

Advertising Rates Furnished Upon Application

Black Hawk Mill

Wgt 17 Lbs.

GRINDS
Corn, Wheat, Rye, Rice, Coffee, Spices, Etc.

Instantly Adjusted to Grind Fine or Coarse.

WILL DO GOOD WORK AND LAST

Grinding Plates are of the Hardest and Strongest Metals. Can be replaced at slight cost.

Packed in barrels of 12 each. Gross weight, 240 lbs.; net, 204 lbs. Measurement 6½ cubic feet.

A. H. PATCH, Sole Maker, Clarksville, Tenn., U. S. A.

Order through any Reliable Commission House.

PATCH'S PATENT

Black Hawk Corn Sheller

Wgt. 15 lbs.

SHELLS FAST.
SHELLS CLEAN.
SHELLS EASILY.

Beware of Imitations

Capacity 8 to 12 bushels ear corn per hour.

Packed 10 in a barrel. Gross, 180 lbs.; Net, 150 lbs. Measurement 6½ cubic feet.

MADE ONLY BY
A. H. PATCH, CLARKSVILLE, TENN., U. S. A.

MOLINE PLOWS AND OTHER FLYING DUTCHMAN FARM TOOLS

Unequalled
Facilities
for Prompt
Handling of
Export Business

SHANGHAI KIDD
DISC CULTIVATOR

Forty-six inches from lowest point of arch to the ground. Adjustable in width from 48 to 72 inches. Popular for cultivating Corn, Cane, Tobacco, etc. Packed for export, weighs 830 pounds. Occupies 25 cubic feet of space.

STALK CUTTERS, WALKING AND RIDING PLOWS, DISC PLOWS, DISC HARROWS, PIPE-LEVER HARROWS, CORN PLANTERS AND DRILLS, LISTERS, COTTON PLANTERS, CULTIVATORS—BEET SEEDERS, CULTIVATORS and PULLERS

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FRONT VIEW
VUE DE FACE
VISTA DEL FRENTE
VORDERANSICHT

37 YEARS building hay, straw, wool, cotton and corn fodder presses should certainly make us experts, and we claim that our presses are the simplest, easiest draught on the team and the smoothest balers on the market to-day.
Our presses will bale from 10 to 18 tons a day in hay.
Our presses will bale from 10 to 15 tons a day in straw.

Depuis 37 années que nous construisons des presses à foin, à paille, à laine, à coton, à fourrage de maïs, nous avons indubitablement acquis une expérience qui a fait de nous des experts, et nous n'hésitons pas à dire que nos presses sont les plus simples qui soient aujourd'hui sur le marché et celles qui fatiguent le moins l'attelage et fonctionnent le plus aisément.
Nos presses emballottent de 10 à 18 tonnes de foin par jour.
Nos presses emballottent de 10 à 15 tonnes de paille par jour.

Despues de 37 años que construimos prensas para heno, paja, lana, algodón y forraje de maíz tenemos que ser expertos en ese ramo, y por lo tanto reclamamos que nuestras prensas son las más simples y las más livianas para el acarreo por parejas de caballos, y las enfardadadoras mejores que existen hoy en el mercado.
Nuestras prensas enfardan de 10 á 18 toneladas de heno por dia.
Nuestras prensas enfardan de 10 á 15 toneladas de paja por dia.

37 Jahre ununterbrochener Fabrikation von Heupressen, Strohpressen, Wolle- und Baumwollenpressen, wie auch Maisfutter-Pressen, sollte uns wahrlich in den Stand gesetzt haben, Experten dieser Branche geworden zu sein; wir beanspruchen deshalb für unsere Pressen, dass sie die einfachsten in Konstruktion sind, beim Gespann den leichtesten Zug haben und zum Emballiren die vorzüglichsten Dienste leisten. Unsere Pressen sind im Stande 10 bis 18 "Tonnengehalt" Heu und 10 bis 15 "Tonnengehalt" Stroh täglich zu emballiren.

THE IMPROVED GEM HAY PRESS

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Catalogue franco sur demande
Catálogo Gratis
Kataloge frei

Our "Gem" Full Circle

We make a line of both Full Circle and Half Circle Presses.
Prices, f. o. b. cars New York City, on our Gem Full Circle Balers, properly crated for export:

	Net Weight.	Gross Weight.	Space	Prices.	
14 x 18 Baler	2,650 (1,457 Kilos)	3,700	115 cubic feet	$215.25	(£44.16.10)
16 x 18 Baler	2,775 (1,526 Kilos)	3,800	171 cubic feet	218.00	(£45. 8. 4)
17 x 22 Baler	2,975 (1,636 Kilos)	4,000	120 cubic feet	221.50	(£46. 3. 0)

Notre presse "Gem" à cercle entier

Nous fabriquons un assortiment de presses à demi-cercle et à cercle entier.
Prix de nos presses "Gem" à cercle entier, mises en wagon à New York et convenablement emballées pour l'exportation:

	Poids net.	Poids brut.	Espace.	Prix.	
Presse 14 x 18	2,650 (1,457 kilos)	3,700	115 pieds cubes	$215.25	(£44.16.10)
Presse 16 x 18	2,775 (1,526 kilos)	3,800	171 pieds cubes	218.00	(£45. 8. 4)
Presse 17 x 22	2,975 (1,636 kilos)	4,000	120 pieds cubes	221.50	(£46. 3. 0)

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EXPORT IMPLEMENT AGE

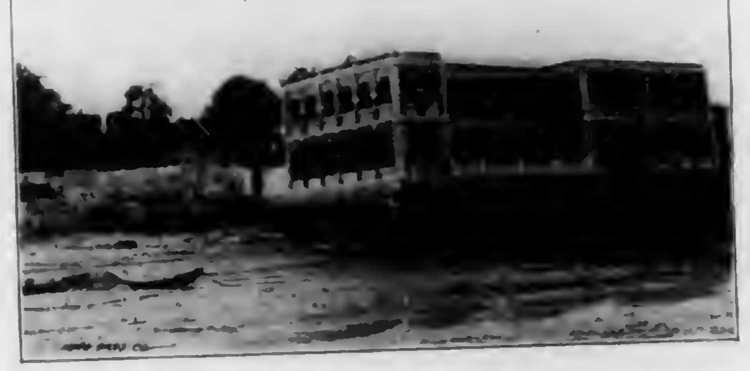
Vol. XIV. Philadelphia, Pa., U. S. A., August, 1906. No. 5

Power on the Farm

When one stops to consider the almost endless number of uses to which the gasoline engine is adapted, says Arthur Seyfarth in Farm Life, it is evident that it must be simple, reliable, safe, and economical, or the farmer would ignore it. The farmer, whose occupation brings him constantly in close touch with nature, abhors counterfeits, for counterfeits are never found in nature, and if the gasoline engine were not all that is claimed for it, the farmer would not be so anxious to adopt it as a motive power. He finds, however, that all its advantages cannot be fully realized until he has operated the engine. It fills a long-felt want. Steam power has innumerable disadvantages which make it impracticable for the farm; electrical power is not yet available; hand power is tedious, worrying and time consuming; horse power is slow and expensive; wind power is unreliable and scarcely ever available when wanted; and water power, though cheap and practical, is available only in certain localities. The objections to all these forms of motive power are overcome in gasoline engine power. It is so cheap and so adaptable that it is rapidly supplanting all other forms.

The gasoline engine can be used to operate all farm machines, such as corn shellers, shredders, feed cutters and grinders, pumps, fans, grist mills, separators, hay balers, threshers, saws, ice cream freezers, etc. It is always ready to work, summer or winter, indoors or out of doors. Start the engine and in a few seconds it is going at full speed. Shut off the engine and it stops, and the expense of operating ceases.

Consider for a moment how the up-to-date farmer uses his engine. For example, says he has a four or five h. p. engine mounted on wooden skids, so that it can be readily moved from place to place. The dairy may be equipped with shafting which can be made from ordinary inch gas pipe, and to this shafting the cream separator and the churn can be belted. It is a simple matter to set the engine in place for operating the separator and churn, and then, if there is corn to shell, feed to grind, or fodder to cut, quickly remove the engine to where these machines are located. On wash day the engine can be used to operate the washing machine, and when the water in the tank is getting low, it is only necessary to connect the engine with the pump by means of a pumping jack and fill the tank. When there is wood to saw it is but the work of a moment to move the engine to a convenient place and saw a week's or a month's supply. Thus the business farmer uses his gasoline engine to accomplish the many operations which have made farm work drudgery for years. It's his best hired man—always ready to work, never tired, and never a source of worry or expense.



A Typical U S. Consulate, located at Amoy, China.

Were you to ask the stockman if he finds the gasoline engine a practical and economical farm utility, he would say that it is impossible to run a stock farm successfully without a gasoline engine. There is feed to grind, corn crop to shred and husk, or cut for the silo, and there is water to pump. For light work he may use a small pumping engine, probably two or three h. p., which supplies water to every part of his farm. This same engine can also be used for other purposes; or, perhaps, the stockman may prefer an engine six or eight h. p., in which case his water supply is probably taken care of by a smaller engine.

As an adjunct to the dairy the gasoline engine seems almost necessary. The engine occupies but little space, requires but little attention when in operation, and is so clean and safe that of all motive powers adaptable for a dairy it is the best. The dairy can be easily equipped with shafting, pulleys and belts, and the engine mounted in a convenient place, so that to operate the separator and churn it is only necessary to start the engine. In less than sixty seconds it will be up to speed under full load, and when the work is done, stop the engine and the expense of operating stops at once. A two or three h. p. engine will furnish ample power for the average dairy and the cost of operating such an engine should not be more than two or three cents an hour.

The orchardist finds the gasoline engine equally convenient. He uses it successfully to mix his spraying preparations, and to operate his spraying apparatus. He would probably use a portable engine, that is, a two or three h. p. engine mounted on wooden skids, which he can move to any part of his orchards, and operate it at once. The engine can also be used to pump water.

Threshermen are beginning to realize the advantages of gasoline engine power over steam power. A portable gasoline engine from 8 to 15 h. p. will operate a six-hole self feeding corn sheller with a capacity of about 450 bushels per hour, or a large shredder, or a threshing outfit with a 32-inch separator, and do it without the expense and inconvenience of a steam engine. In fact, the advantages and economy of the gasoline engine over the steam engine are more apparent here than in most other instances. No engineer is needed to watch the water and steam gauges; no team and man are required to haul fuel and water. There is no smoke; there are no sparks which might set fire to houses, barns, or crop. A 15 h. p. gasoline engine under full load should not consume during a run of 10 hours more than 15 gallons of gasoline, which, at 10 cents a gallon, makes the cost of fuel for the day only $1.50. This cost of fuel is practically the only expense of operation. This is a point in the economy of operation which is beginning to appeal with considerable force to threshermen everywhere, and it is safe to assume that in a few years the gasoline engine will have practically displaced the steam outfit. Whereas now the thresherman with a steam traction engine says that the portable gasoline outfit cannot be transported with its own power; the fact is that a gasoline traction engine is even now a reality. It is possible to mount a gasoline engine on specially designed trucks, and when so mounted it travels over the roads with the ease and freedom of the steam outfit. One ingenious farmer in Kansas removed the rear truck of his portable engine and put in place the rear truck of a steam traction engine with the result that his outfit is doing as satisfactory work as any steam traction engine in the vicinity. The success of such home-made outfits speaks well for the possibility of the gasoline traction engine outfit.

The mill owner finds a gasoline engine a practical necessity. It is so much better and cheaper than steam in every way, and so much more effective than the old water wheel, that he finds it unprofitable to be without this modern powder producer. In 1680, in what is now New London, Conn., was built a grist mill operated by a large water wheel. For 225 years this old wheel turned day after day, year in and year out, to grind the grist of the farmers of the neighborhood. The advent of the gasoline engine, however, sealed its doom; a year ago this old wheel was replaced by a 15 h. p. gasoline engine. This incident is but one of many occurring every day which tend to prove conclusively that other forms of power producers for farm use must eventually give way to the gasoline engine.

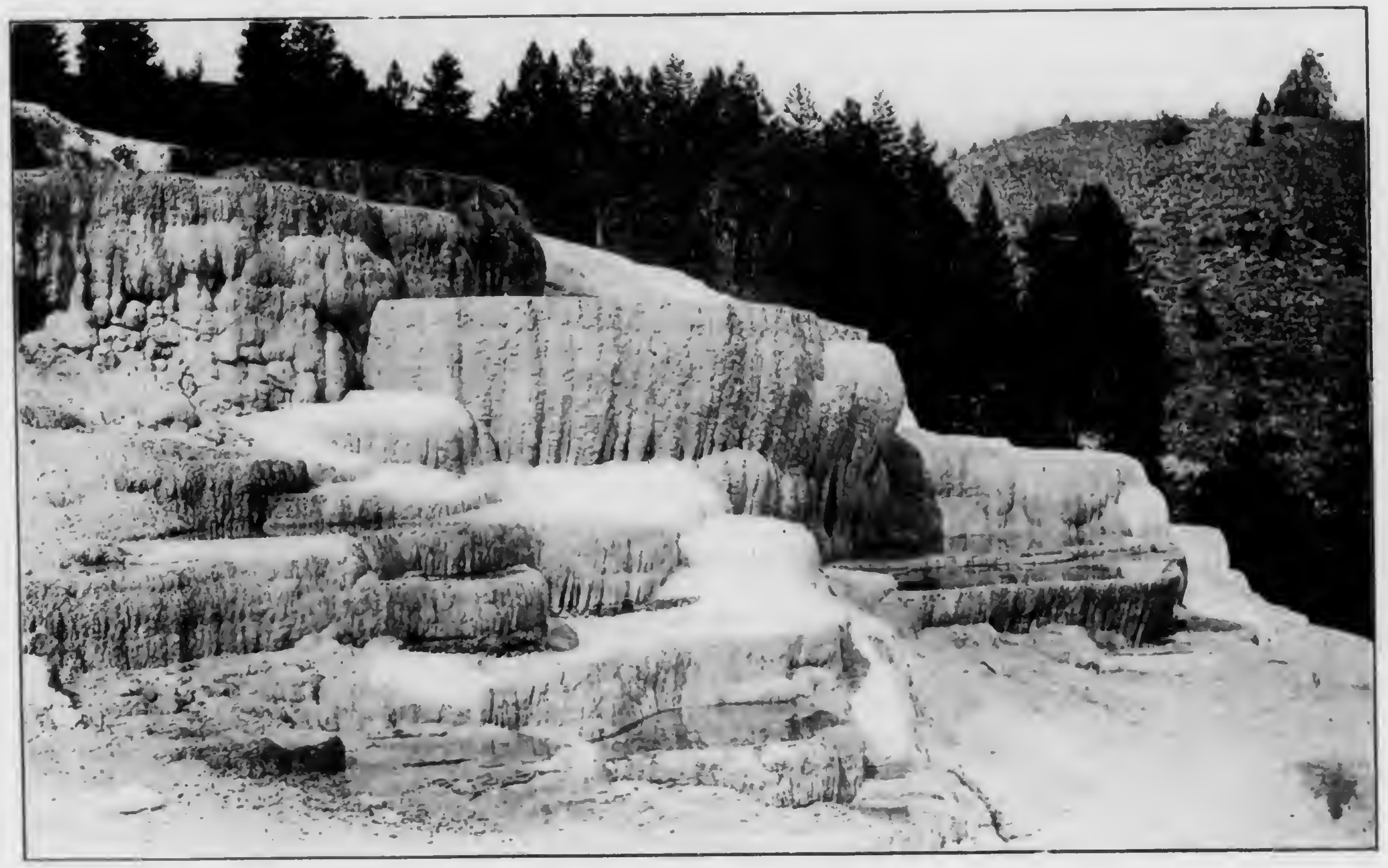
The question as to the size of the engine can best be decided by the farmer. For the average farm a small engine of from three to five h. p. will operate most of the machines. One farmer in Nebraska with a five h. p. engine operates the following machines: A two-hole corn sheller with a 20-foot drag feed, a feed grinder, a large fanning mill, a two-boot elevator with sacker, etc., and has plenty of surplus power. He has shelled and sacked 16,000 bushels of seed corn, cleaned about 7,000 bushels of millet and five carloads of alfalfa seed, besides small lots of pop corn, etc., with a total consumption of 140 gallons of gasoline, which, at a cost of 15 cents per gallon, made the total cost of operating $21. Not one cent was spent for repairs or a minute's time lost for delays from any cause. It will thus be seen that a small engine of this size is a practical engine for the average farmer. In cases of this nature a stationary engine may be purchased to be mounted upon a substantial foundation under cover, and connected to shafting to which the various machines are belted. This method should appeal particularly to the up-to-date farmer as it virtually supplies him with a power house on the farm—a convenient place where he can find an ever-ready power. If the engine is thus installed, the tank containing the supply of gasoline is placed outside of the power house so that, if the engine is of the approved type, there will be no increase in the insurance rates.

If the farmer should desire a portable outfit only, he may purchase an engine from 2 to 10 h. p., either mounted on wooden skids or so equipped that he can mount it upon tracks or skids as desired. It is hardly practical to mount on skids an engine of more than 10 h. p. as it is too heavy and large. This outfit is particularly desirable where the work to be done is at different places on the farm. Transporting such outfits is a simple matter; and inasmuch as they are equipped with water tanks and gasoline supply tanks, it is a simple matter to operate them.

Where there is work of greater variety requiring more power, a portable gasoline engine from 12 to 32 h. p., mounted on trucks, will prove most desirable. An outfit of this nature can be successfully and economically used to operate threshers, shredders and shellers.

An impression seems to prevail among some farmers that a gasoline engine is a source of danger. This is far from the truth. There is absolutely no danger connected with the engine or gasoline, and the latter only becomes dangerous when used in the presence of a flame. Approved stationary engines are provided with electric ignition so that they may be used indoors with perfect freedom.

The possibility of the gasoline engine as a farm utility has been only partly realized, and the next few years will, undoubtedly, witness its almost universal introduction on the farms of the country.



MAMMOTH HOT SPRINGS TERRACE, YELLOWSTONE PARK.

One of the many charming views in Yellowstone Park. One of nature's wonders. These hot springs are a geological anomaly and constitute a display which fills the beholders with awe.

The Northern Philippine Islands and Their People

By WILLIAM JENNINGS BRYAN, in *The Commoner*.

While a deep interest in the political problems tempts me to deal at once with the policy to be pursued by our government with respect to the Filipinos, I am constrained to proceed logically and discuss first the islands and their people. And in speaking of the Filipinos, a distinction should be made between those who inhabit the northern islands and are members of one branch of the Christian church and those who inhabit the island of Mindanao and the Sulu Archipelago—people who are followers of Mohammed. While a considerable number of Filipinos are to be found in Mindanao, and some in Sulu, the Sultans and Datus have dominated the country. Even Spanish authority never extended over the southern islands and the garrisons maintained at the seaports were constantly in fear of massacre.

Leaving the southern islands for the next article, I shall confine myself at present to Luzon, Panay, Negros, Cebu, Samar and the smaller islands which make up the Visayan group. These islands contain the bulk of the territory, a large majority of the people, most of the material wealth and practically all of the civilization of the Philippines. Luzon, the largest of the entire group, reaches almost to the nineteenth parallel and is about six degrees long. Like the islands of Japan, it is mountainous and well watered. The other islands of the group are considerably smaller and extend as far south as the ninth parallel. They, too, are mountainous, but the valleys are fertile and support a large population. The principal industry is agriculture, and the soil produces a variety of cereals, fruits and vegetables. Rice, as in other oriental countries, is the chief article of food, though hemp is by far the largest export. The hemp plant looks so much like the banana that the traveler can scarcely distinguish between them. Sugar cane is also grown in many parts of the islands and would be cultivated still more largely but for the low price of raw sugar. Sugar, however, can not be raised here with the same profit that it can in Hawaii and Cuba owing to the fact that it must be replanted more frequently. Tobacco of an excellent quality is produced on several of the islands sufficient to supply the home demand (and nearly all Filipinos use tobacco) and leave a surplus for export.

The cocoanut is a staple product here of great value and its cultivation can be indefinitely extended. Of all the crops it probably yields the largest income on the investment, but as the trees do not begin to bear until they are about eight years old, they are only cultivated in small groves or by those who can afford to wait for returns. Copra, the dried meat of the cocoanut, is now exported to the value of two and a half million dollars, but systematic effort ought to very largely increase this export.

The methods of cultivation and the implements used are not as modern as one would expect. The carabou, or water buffalo, is the one all purpose farm animal. Carabous are something like the American ox, but are more heavily built; they are uniform in color—a dark drab—and have heavy, flat horns which grow back instead of forward.

The agricultural situation in the islands is at present most distressing. The fields were devastated by war and before labor could restore what soldiers had destroyed, rinderpest attacked the carabous and in some places carried away as many as 90 per cent. of the animals. We visited a sugar plantation which had lost more than half of its carabous during the two weeks preceding. Everywhere one sees fields overgrown with grass which can not be cultivated for lack of plow animals. One can understand something of the rinderpest calamity when it is remembered that these patient beasts do all the plowing and all of the hauling in the Philippine Islands. We often saw them ridden, sometimes bearing two persons. In addition to the ravages of disease and the ruin wrought by arms, the Filipino farmer has suffered from the closing of his market. When United States authority was substituted for Spanish rule, the Filipinos lost the advantage which they had previously had in the Spanish market, while they were shut out of the United States by a tariff wall. And to make matters worse, they now bear the brunt of the

Scene on the famous boardwalk at Atlantic City, N. J., one of America's celebrated seaside resorts.

Chinese boycott aimed at American goods. Every speaker who has attempted to voice the sentiments of the people during our stay in the islands has laid especial emphasis upon the injustice done to the islands by our tariff laws. This subject was also brought to the attention of Secretary Taft and his party, and all of the American officials here urge the importance of relief in this direction.

The well-to-do Filipinos live in houses modelled after those built by the Spaniards, but the great majority of the people live in what are called nipa huts—light structures made with bamboo frames and with sides and roofs of nipa palm leaves. The houses are several feet above the groand and are reached by a ladder or steps. As the temperature at mid-day does not change much the year round, the main objects in building are to secure protection from rain and an abundance of air and the nipa hut meets these requirements. The Filipino house is not only light and airy but it is inexpensive; we saw a school house at Santa Barbara built for five hundred pupils at an expense of five hundred pesos, or $250 in gold. At some of the military camps, which we visited, the Filipino style of building has been adopted.

Portion of the Beach at Atlantic City, where visitors from all parts of the world bathe in the waters of the Atlantic, on account of its accessibility from New York City, Boston, Philadelphia and all Eastern Ports

The Filipino dress is quite like that worn in Europe and America, among the educated men it is identical. The men of the middle class wear a shirt of gauzy material outside the trousers. The women wear a dress skirt with a long narrow train and a low-necked, wide-sleeved waist, jusi (pronounced hoose), or pina (penya) cloth. A kerchief of the same material folded about the neck completes the toilet. All the thin fabrics worn by the women are manufactured on hand looms kept in the homes.

Iliolio is the center of the jusi cloth manufacture, of which we saw many beautiful samples during our tour of the islands. The pina cloth is made from the fibre of a leaf resembling that of the pineapple. In the province of Balacan a fine quality of silk is made on hand-looms—the weaving of fabrics being an accomplishment in which the women take pride. There is a coarser cloth made of hemp which is used for ordinary wear, and this is also produced in the home and sold on market days.

Such conflicting reports have reached the United States regarding the Filipino people that I was anxious to study them for myself, and I feel that I am prepared to form an intelligent opinion upon the subject. I have seen representatives of all occupations in all parts of the islands, in the cities and in the country. I have conversed with students and professional men, visited the markets where the rank and file meet and exchange their products, watched the farmers at work in the fields and the laborers in the city and made inquiries of both Americans and natives. The Filipinos are a branch of the Malay race, but there is such a strong resemblance between some of the individual Filipinos and the Japanese as to suggest the possibility of a mixing of bloods, if not a common origin. At Hong Kong I visited a Filipino of prominence and the young lady who admitted me so resembled the Japanese that I was surprised to learn that she was the daughter of my host. A few hours later I noticed a young man attending to some business in a shipping office and supposed him to be a Japanese, but found that he also was a full blooded Filipino. The Filipinos are a little darker than the Japanese and may average a little taller, but I have constantly been reminded of the land of the rising sun during my stay here.

It is frequently said in disparagement of the Filipinos that they will not work, but this is answered conclusively by a patent and ever present fact, viz., that they produce their own food, make their own clothes, build their own homes and in other ways supply their needs. They have not the physical strength of the average American, nor have they the experience in machine labor or in the organization of work, but they will do more physical labor than a white man can perform in this climate and they have shown themselves capable of doing the finer kinds of work when instructed. They are also capable of successful co-operative effort when under efficient guidance. One of the commission informed me that the street car system lately inaugurated in Manila was put in at a labor cost of 40 per cent. below the estimate, the work being done by Filipino laborers under an American contractor. This is certainly an excellent showing. The operating force is composed of Filipinos and the cars are run very successfully.

The superintendent of the railroad from Manila to Dagupan, an Englishman, speaks very highly of the Filipinos employed on the road. He says that he uses natives entirely for the train service and that he has not had an accident on the road during the thirteen years of its operation.

A large company of men were unloading stone and gravel from barges near our hotel, and they were as industrious and as cheerful a lot of workmen as one could wish to see. They carried the material in baskets and accomplished more, so far as I could judge, than the coolies whom I saw at similar work in China. The Filipino demands better treatment than that accorded to the coolie, but when employed by those who understand him and show him proper consideration, he is both competent and faithful.

In the government printing office nearly nine-tenths of the employees are natives (and the proportion is increasing), and Mr. Leach, the public printer, informed me that they readily learned the work and were able to run the type-setting machines and presses, do the book binding and stereotyping and other skilled work connected with the office. The newspaper offices of the city also employ native labor, and I need not remind my readers that the members of the various typographical unions of the United States are among the most intelligent of our skilled laborers. We visited the largest tobacco factory in Manila, the Germinal, and found between twelve and fifteen hundred men and women making cigars and cigarettes by hand and machine. There are several smaller factories, and all are operated by native labor.

RIVERSIDE GEYSER, YELLOWSTONE PARK

This everlasting spouter in the depths of the Yellowstone Park Forests is a never-ending source of admiration and wonderment to the throngs of tourists whose curiosity on viewing it is never satisfied

One of the leading furniture manufacturers of Manila is authority for the statement that in wood carving the Filipino soon becomes the equal of the Japanese artisan. The Philippine Islands are so near the Equator that the heat of the sun during the middle of the day and the almost twelve months of summer must be taken into consideration. When due allowance is made for climatic conditions and for the fact that the inhabitant of the tropics lacks the spur of necessity which ever urges on the dweller in higher latitudes, one is inclined to excuse any seeming lack of industry. Sure it is that those who come here from America and Europe do not as a rule do enough manual labor to enable a comparison to be drawn between them and the natives.

Besides those who work in the fields, on the streets and the factories, there is an army of fishermen and boatmen. Fish forms a considerable part of the food supply of the island, and these are brought from the ocean, from the rivers and from the lakes by a hardy and active people. Much of the commerce is carried by water, and the boats are manned by natives. Except where the Chinese have monopolized the mercantile business, the stores are kept by Filipinos, the men and the women sharing the labor as they do in France.

And speaking of the women, it must be remembered that woman occupies a much higher place in the Philippines than in any other part of the Orient. The Filipinos contend that even before Spanish influence made itself felt in the islands, woman was accorded an equal place with man and divided with him both the honors and the responsibilities of the home. However this may be, it can not be doubted that at present the rights of woman and her position in the family and in society are respected fully as much as in continental Europe. Her influence is felt in industrial and political life as well as in the church. At one reception a lady law student delivered an excellent address.

Under Spanish rule, education was confined to a few. In fact, one of the inducements brought against the Friars by the natives was that educational facilities were denied to the masses. This, too, brought the Jesuits, the friends of education, into conflict with the friars. But comparatively few of the people enjoyed the advantages of higher education, and these were a controlling influence in their respective communities. As in Mexico and in Cuba, the cultured men and women of the Philippines are thoroughly refined and polished in manner.

The American government has had no difficulty in finding men competent to fill the offices which have been assigned to the natives, three of the seven members of the commission and three of the seven supreme court judges being Filipinos. The governors and mayors are nearly all Filipinos, as are most of the judges of the lower courts. As there is no satisfactory service by private boats, the commission furnished us a coast guard steamer for a tour of the islands, the passengers paying the cost of subsistence, and we were thus enabled to visit the principle cities. At all of these places we found a group of intellectual and public spirited men. At Ilioli, Bacolod, Cebu and Santa Barbara there were addresses of welcome and public receptions, and the views of the residents were presented in clear and well chosen language. At Malolos, the first capital of the Aguinaldo government, which we visited as the guests of a committee of prominent Filipinos, similar speeches were delivered, which met with the approval of the assembled crowd. At Manila a public dinner was given by a number of representative Filipinos, headed by Mayor Roxas, at which

(Continued on page 14)

EXPORT IMPLEMENT AGE

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KEEP WELL INFORMED

There is constant improvement in the quality and character of agricultural implements. Machines which were considered a wonderful improvement only a few years ago are now out of date. It pays the foreign buyer to keep posted on the latest improvements and devices in all classes of agricultural machinery, and for that reason the catalogues and printed matter offered by the advertisers in the EXPORT IMPLEMENT AGE may be of inestimable value to our readers abroad. Any of our advertisers will be pleased to send their catalogues and all information desired. Correspondence may be carried on in any language.

BENEFITS OF COMPETITION

The spirit of competition among manufacturers of implements in America is so keen that the buyers of their goods invariably profit greatly, not only in the reasonableness of the price, but in the excellence of the product. Factories are constantly improving their equipments and facilities, and reducing expenses in every possible way. At the same time, their experts in all departments are hard at work devising improvements in the machinery to make the implements more attractive, durable and effective. Competition for export trade is also brisk, so that the inquiries and orders from abroad are considered of first importance.

PROMPT SHIPMENTS

American manufacturers of agricultural implements and machinery realize the importance of prompt shipments in response to orders from abroad. This is one of the reasons why it is satisfactory to do business with the American implement manufacturers. Foreign buyers can always rest assured in the conviction that every resource of counting room and factory will be employed to start the goods ordered on their way. There is seldom any delay whatever in the making of the goods as the stock is held in readiness for the prompt filling of foreign orders. In the exceptional cases where the goods are not on hand when the order is received, the stock room or yard is always well supplied with raw material, which is made up into the finished machines, without loss of time. The system of inspection at every step and in every department, is such as to prevent the possibility of speed being made at the expense of quality.

SOUTH AMERICAN GOOD WILL

Secretary of State Root is proving himself to be a most capable and just representative of the United States in his South American tour. He has been delivering to the South American people messages of good will and support from the people of the United States, whom he officially represents. The result of his public addresses, and his personal and official contact with the leading diplomats and business men of the South American countries, cannot but result in an increased feeling of confidence and good will, which will mutually benefit the relations between the United States and the South American nations in a material way. In one of his recent speeches Secretary Root said:—

"It is most gratifying to hear from the lips of one of the masters of South America diplomacy—one who knows the reality of international politics—so just an estimate of the attitude of my own country towards her South American sisters.

"The great declaration of Monroe, made in the infancy of Latin-American liberty, was an assertion to all the world of the competency of Latin-Americans to govern themselves and their countries. That assertion my country always has maintained, and my presence here is, in part, for the purpose of giving evidence of her belief that the truth of the assertion has been demonstrated—that in the progressive development which attends the course of nations, the peoples of South America have proved that their national tendencies and capacities are and will be on, and ever on, in the path of order and liberty.

"I am here to learn more and also to demonstrate our belief in the substantial similarity of interests and sympathies of American self-governing republics. You have justly indicated that there is nothing in the growing friendship between our countries which imperils the interests of those countries in the old world from which we have drawn our language, our traditions, and the bases of our customs and our laws.

"I think it may safely be said that those nations which planted their feeble colonies on these shores and from which we have spread so widely, have profited far more from the independence of the American republics than they would have profited if their unwise system of colonial government had been continued. In the establishment of these free and independent nations of this continent they have obtained a profitable outlet for their trade, employment for their commerce, food for their people, and refuge for their poor and their surplus population.

"We have done more than that We have tried here their experiments in government for them. The reflex action of American experiments in government has been felt in every country in Europe without exception, and has been far more effective in its influence than any good quality of the old colonial system could have been; and now our prosperity but adds to their prosperity.

"Intercourse in trade and exchange of thought in learning, in literature, in art, all add to their powers and their prosperity, their intellectual activity, and their commercial strength. We still draw from their stores of wealth commercially, spiritually and intellectually."

SCIENTIFIC PLANT BREEDING

The Carnegie Institution, Washington, D. C., has arranged to finance for a term of years the operations of Mr. Luther Burbank, of Santa Rosa, Cal., who has come to be so universally known as the "Wizard of Horticulture." A committee, consisting of the president and some of the directors of the institution, has been organized for the purpose of carrying on a scientific analysis of the striking results in plant breeding secured by Mr. Burbank.

The committee consists of R. S. Woodward, president, and Drs. C. B. Davenport and D. T. MacDougal. This committee recently made a visit to Santa Rosa, where a conference was held with Mr. Burbank as to scope. The work will be conducted without any interruption to the series of plant breeding experiments, some of which Mr. Burbank has carried on for twenty or thirty years.

Various members of the scientific staff of the institution will take up their residence with Mr. Burbank and make a close study of his more noted plants. This work has been undertaken for the purpose of gaining information on heredity and evolution.

For several years Dr. MacDougal has been conducting a series of experiments on these lines at the New York Botanical Garden, with results largely confirmatory of the theory given to the world some three years ago by Dr. Hugo de Vries, of Amsterdam, that new species frequently develop at once from parent plants instead of always being the product of years of time and a multiplicity of minor changes, as Darwin believed.

Dr. Davenport, of the committee, has been an equally enthusiastic student of the problems of evolution and is director of the Carnegie Evolution Laboratory, at Cold Spring Harbor. Dr. MacDougal is director of botanical activities of the Carnegie Institution.

Among other problems, the microscopic anatomy of hybrids will come in for a large share of the attention of the investigators at Santa Rosa.

Comparatively little systematic information as to the manner in which the elements of two unlike plants combine in hybrids exists, and the committee hopes to gain important results.

Incidentally the committee reports that "Mr. Burbank's splendid work has been grievously misrepresented to the public by various newspaper writers, authors of books and others, some scientists and pseudo scientists," while "some of the simplest operations by which Mr. Burbank has been able to bring about the improvement of fruits and vegetables have been enlarged upon in a sensational manner, much to the detriment of Mr. Burbank's reputation, and he has been accredited with performances to which he lays no claim."

As an instance, the spineless cactus, to which most wonderful properties have been ascribed, is cited. It has been described as having been produced by Mr. Burbank, while the fact is, according to the committee, that Mr. Burbank is crossing a naturally spineless cactus with a spiny one in an effort to secure a form devoid of spines and spicules and to develop other traits which would make the hybrids valuable as forage and for their fruits.

Much progress has been made on these lines, but the hoped-for results are far from accomplished facts.

Long practice, enduring and keen enthusiasm for this kind of work have, on the other hand, resulted in accomplishments which rank Mr. Burbank as "the foremost plant breeder in America. He works with keen intuition and is able to foretell the probable value of his hybrids by inspection in the seedling stage."

The detail work of the study of the products of Mr. Burbank's plantation will be carried on by Dr. George H. Shull, of the experiment station at Cold Spring Harbor and Dr. W. A. Cannon, of the Desert Botanical Laboratory, Tucson, Ariz.

All the workers interested and the committee have planned to meet in the near future to mature plans and provide for the continuance of the work.

MOLDING CONCRETE BUILDINGS

Whole houses molded in a single casting out of solid concrete, which will provide cozy homes for workingmen at a cost from $500 to $600—much less than the average mechanic pays to-day—is the goal which Thomas A. Edison is striving to reach, according to reports now being circulated. He is confident of success. Combined with economy of construction and maintenance the inventor aims to embody architectural beauty and practical indestructibility.

Mr. Edison intends to make his first practical experiments next year in his new village in Warren county, N. J. One of the big Edison industrial establishments is situated there, and he purposes to erect the homes by the new process for the families of the hundreds of employes of the plant. If he succeeds in demonstrating the practicability of the scheme he will introduce it generally.

He already has conceived every detail of the project. Four days at the outside is the period Edison estimates will be necessary to cast and turn out whole houses with from eight to ten rooms each, complete in almost every detail and ready to be furnished and carpeted. The actual time for pumping the concrete into the metallic molds will be only a few hours, and the rest of the time will be consumed in drying out and hardening. Whole cities of concrete may be reared in the brief period of four days if only enough molds and men are provided.

Mr. Edison thinks that the time is near when the world must find some substitute for brick and lumber. The yellow pine forests of the United States will be destroyed within fifty years if the present drain upon them is maintained.

Describing the plan in detail Edison said:

"The first step will be to employ an architect to design, say, a dozen dwelling houses of different patterns. I purpose to have metallic molds made to correspond. The mold for each house will be made in detachable parts. There will be separate plates and small molds that can be screwed together easily to form one mold for an entire house. That a fine finish may be obtained, the inside surfaces of the parts will be nickel plated.

"After the mold for the whole house is set up, it will be a simple matter to pump the concrete into every nook and cranny. After four days the parts of the mold will be unscrewed and taken off and the solid concrete house will remain."

Edison says the plan will be carried out in such detail that dormer windows, chimneys, spouts, and ornamental designs will be molded with the whole and that inside cupboards, fireplaces, stairways with ornamental banisters, mantel pieces, and even bathtubs will be formed in the cast in which the house proper will be made.

The house will be so complete that when the mold is removed, the installation of electric wires, window sashes, etc., will be all that will be necessary before the furnishers and carpet layers may go to work. Even the plumbing and gas piping will be of concrete and molded in the original cast.

As a practical demonstration of what may be accomplished by the process Edison has built a complete chicken house in his back yard, molded in one solid piece out of concrete. It has many compartments and doorways and decorated cornices of intricate design.

The original cost of each mold, with all its component parts, the inventor estimates at $25,000. From each mold, however, he says an unlimited number of houses may be produced. Because the parts of the mold are to be detachable it will be portable and one mold may be sent with little difficulty from town to town. About ninety houses could be built in one year by the use of a single mold, at a cost of from $500 to $600 apiece.

EXPORTS OF AGRICULTURAL IMPLEMENTS

ARTICLES AND COUNTRIES	JUNE— 1905.	JUNE— 1906.	TWELVE MONTHS ENDING JUNE— 1904.	TWELVE MONTHS ENDING JUNE— 1905.	TWELVE MONTHS ENDING JUNE— 1906.
Mowers and reapers, and parts of	$ 688,519	$ 910,503	$11,568,062	$10,559,891	$12,150,101
Plows and cultivators, and parts of	245,454	299,113	3,537,810	2,892,060	4,128,331
All other, and parts of	528,690	812,907	7,643,763	7,269,790	8,275,995
Total	$1,462,663	$2,022,523	$22,749,635	$20,721,741	$24,554,427
Exported to—					
United Kingdom	76,477	120,120	1,924,179	1,068,381	1,019,317
Belgium	14,911	16,390	231,021	176,821	269,281
France	178,556	246,658	3,063,752	2,817,998	2,895,243
Germany	115,241	149,084	1,579,026	1,246,101	2,016,894
Italy	12,804	12,399	137,871	240 196	363,737
Netherlands	9,373	36,213	231,192	201,819	606,335
Russia	85,345	72,844	3,342,130	3,812,705	3,851,455
Other Europe	55,916	108,162	1,333,139	1,157,607	1,781,342
British North America	111,432	274,953	3,362,113	1,898,915	2,281,448
Central American States and British Honduras	1,290	221	11,059	18,539	15,051
Mexico	32,427	36,811	369,494	364,093	541,280
Cuba	31,312	12,509	120,593	208,908	193,601
Other West Indies and Bermuda	1,254	1,323	11,504	12,957	12,898
Argentina	504,351	654,567	3,996,476	5,032,853	5,963,714
Brazil	8,615	12,294	51,757	151,715	103,971
Chile	11,271	97,339	247,238	254,735	394,051
Colombia	826	1,170	2,547	4,022	4,604
Venezuela	154	203	1,100	2,010	2,181
Other South America	14,830	18,842	209,183	162,866	316,155
British East Indies	13,890	7,597	64,579	61,800	63,954
British Australasia	114,056	93,182	1,555,085	1,159,933	863,350
Philippine Islands	4,476	227	28,583	22,335	115,800
Other Asia and Oceania	5,626	8,484	104,939	107,124	354,425
British Africa	49 830	35,953	673,737	423,072	382,688
All other Africa	8,400	4,978	97,338	114,236	141,652
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Dr. Apacible, the head of the Hong Kong junta during the insurrection, now a practicing physician in Manila, was selected by the Filipino reception committee to accompany us on our trip, and being personally acquainted with the leaders of thought, he was able to bring us into contact with those who reflected the opinion of the people, while Captain Moss, of General Corbin's personal staff, and Collector Shuster, representing the insular government, kept us in touch with the Americans in military and civil life. We found everywhere commendation of the educational system established by the Americans. It is the one department of work instituted by our government which seems to have avoided serious criticism. I presented this universal commendation as evidence of the good intentions of our people, pointing out to the Filipinos that people are apt to assert their rights in proportion as they increase in intelligence and that our people would not be foolish enough to encourage education if they really intended to do injustice to the Filipinos.

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Dans le Répertoire d'adresses à l'usage des cheteurs, dans la première partie de ce livre nous donnons les renseignements en français; nous avons recours à ce moyen afin de faciliter la correspondance avec les maisons qui font insérer des annonces dans ce journal.

Quand on demande un catalogue, il est bon de donner le numéro du catalogue, si les instructions le recommandent. Aux Etats-Unis le fabricant publie quelquefois des catalogues pour chaque catégorie d'instruments. Désigner également la langue dans laquelle on désire recevoir le catalogue.

Les instruments agricoles d'une certaine catégorie ne sauraient être inventés et perfectionnés en un jour, ou dans une année, ou même dans quelques années. Bien que les fabriques américaines soient de tous points modernes, les instruments qu'elles produisent sont le résultat d'un lent développement, qui a demandé de longues années, de vastes sommes d'argent et les études et l'habileté des mécaniciens les plus éxperimentés.

Il y a des exceptions à toutes les règles, mais on peut dire qu'il ne sort jamais d'outils imparfaits de l'établissement américain moderne de machines agricoles. Les mécaniciens expérimentés qui sont employés dans les fabriques américaines d'outils agricoles, savent qu'ils travailleraient à rebours de leurs intérêts et de ceux de leurs patrons s'il laissaient passer des matériaux ou un travail imparfaits. Chaque ouvrier est donc un inspecteur, et les chances qu'une imperfection puisse passer inaperçue sont réduites au minimum.

Les fabricants dont on trouve les annonces dans ce journal se rendent parfaitement compte de l'importance qu'il y a à répondre promptement aux demandes de renseignements qui leur viennent de l'étranger et à exécuter les commandes avec soin et promptitude. Le temps est toujours une question de haute importance à notre époque; les délais ne trouvent point faveur surtout lorsqu'il s'agit de commerce extérieur.

Equerres d'acier

Silas Howes, forgeron de South Shaftsbury (état de Vermont) inventa et fit breveter les équerres d'acier qui sont aujourd'hui communément employées par les charpentiers. Il fabriqua les premières en 1813, et elles étaient façonnées en soudant ensemble, à angle droit, des morceaux de vieilles scies, sur lesquelles l'inventeur marquait les pouces. Elles se vendaient facilement alors 5 et 6 dollars pièce, bien que ce fut juste après la guerre de 1812 à un moment où l'argent était rare. Howes devint millionnaire et fit beaucoup de bien avec sa fortune. On fabrique encore aujourd'hui des équerres à l'endroit même où la première fut faite il y a plus de quatre-vingt-dix ans.

Prix pour inventions

Le gouvernement français offre un prix de 20,000 francs pour la découverte d'un agent capable de dénaturer l'alcool et qui soit meilleur que celui que l'on emploie actuellement. Le goût et l'odeur de cet agentne doivent pas être fort et repoussant au point de nuire à l'usage de l'article dénaturé. Les substances solubles laissant des dépôts sur les mèches ou dans des tubes fins, tel le sel de cuisine, ne sauraient convenir. La volatilité de l'agent sauraient convenir. La volatilité de l'agent dénaturant doit être essentiellement la même que celle de alcool, de telle sorte que cet agent ne puisse être éliminé par distillation fractionnée. Il ne doit pas renfermer de substance capable d'attaquer les métaux. Il ne doit pas être vénéneux comme le bichlorure de mercure; il doit être suffisamment bon marché pour ne pas entraver l'usage de l'alcool pour les besoins industriels et domestiques; il ne doit pas exister normalement dans l'alcool du commerce, et sa présence dans l'alcool doit être facile à découvrir.

Un autre prix de 50,000 francs est offert pour une invention permettant d'utiliser l'alcool pour l'éclairage, de même qu'on utilise aujourd'hui le pétrole.

Population future de New York

Dans son discours à la Savings Bank Association, M. Vanderlip citait l'expert comptable du gouvernement des Etats-Unis comme prédisant positivement que le plus grand New York aurait une population de 8,500,000 âmes lorsque l'émission récente des obligations de 4 pour cent viedrait à échéance. A ceci le *Wall Street Journal* ajoute:

"L'expert-comptable des Etats-Unis pouvait faire cette prédiction sans crainte de se tromper. Au cours des vingt-cinq dernières années la population de New York a augmenté de 110 pour cent. La récente émission d'obligations viendra a échéance dans cinquaunte années. Si la population de New York augmente dans les mêmes proportions au cours des vingt-cinq prochaines années, elle s'élevera à 8,450,000 âmes en 1930, soit au chiffre que, d'après l'expert comptable du gouvernement, elle devrait atteindre dans cinquante années. Même si l'on estime la population future de New York avec plus de réserve, il semblerait que l'expert-comptable du gouvernement soit par trop conservateur sans ses calculs. Le président du conseil de comté de Londres prédisait récemment que la population du plus grand Londres en 1930 s'élèverait à 11 millions d'âmes, ce qui répresenterait une augmentation de 67 pour cent en vingt-cinq ans. Si l'on prend 67 pour cent comme base de l'augmentation, la population de New York a l'époque de l'échéance des obligations de 4 pour cent s'élèverait à 11 millions d'âmes, soit 2,500,000 âmes de plus que ne prédit l'expert-comptable du gouvernement. La population de New York augmente en réalité plus vite que celle de Londres, de sorte qu'on peut prédire sans crainte de se tromper qu'à l'époque de l'échéance des obligations de 4 pour cent, sa population égalera ou surpassera celle de Londres à ce moment-là, bien que le plus grand Londres ait aujourd'hui 2,500,000 âmes de plus que le plus grand New York."

Répondre à une lettre ou exécuter une commande avec célérité est tout bonnement exaspérant quand à la promptitude ne se joint pas l'exactitude. Cela est surtout vrai quand le lettre ou la commande viennent de très loin et que le temps par suite est un point capital. Nos lecteurs trouveront que les fabricants qui nous chargent de leurs annonces donnent un soin tout particulier à leur commerce extérieur et qu'ils ne tolèrent point les délais inutiles.

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La même maison public: "The Implement Age," "The American Fertilizer," "The Carriage Monthly" et "The Vehicle Dealer."

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Dans le Répertoire d'adresses à l'usage des cheteurs, dans la première partie de ce livre nous donnons les renseignements en français; nous avons recours à ce moyen afin de faciliter la correspondance avec les maisons qui font insérer des annonces dans ce journal.

Quand on demande un catalogue, il est bon de donner le numéro du catalogue, si les instructions le recommandent. Aux Etats-Unis le fabricant publie quelquefois des catalogues pour chaque catégorie d'instruments. Désigner également la langue dans laquelle on désire recevoir le catalogue.

Les instruments agricoles d'une certaine catégorie ne sauraient être inventés et perfectionnés en un jour, ou dans une année, ou même dans quelques années. Bien que les fabriques américaines soient de tous points modernes, les instruments qu'elles produisent sont le résultat d'un lent développement, qui a demandé de longues années, de vastes sommes d'argent et les études et l'habileté des mécaniciens les plus éxperimentés.

Il y a des exceptions à toutes les règles, mais on peut dire qu'il ne sort jamais d'outils imparfaits de l'établissement américain moderne de machines agricoles. Les mécaniciens expérimentés qui sont employés dans les fabriques américaines d'outils agricoles, savent qu'ils travailleraient à rebours de leurs intérêts et de ceux de leurs patrons s'il laissaient passer des matériaux ou un travail imparfaits. Chaque ouvrier est donc un inspecteur, et les chances qu'une imperfection puisse passer inaperçue sont réduites au minimum.

Les fabricants dont on trouve les annonces dans ce journal se rendent parfaitement compte de l'importance qu'il y a à répondre promptement aux demandes de renseignements qui leur viennent de l'étranger et à exécuter les commandes avec soin et promptitude. Le temps est toujours une question de haute importance à notre époque; les délais ne trouvent point faveur surtout lorsqu'il s'agit de commerce extérieur.

Equerres d'acier

Silas Howes, forgeron de South Shaftsbury (état de Vermont) inventa et fit breveter les équerres d'acier qui sont aujourd'hui communément employées par les charpentiers. Il fabriqua les premières en 1813, et elles étaient façonnées en soudant ensemble, à angle droit, des morceaux de vieilles scies, sur lesquelles l'inventeur marquait les pouces. Elles se vendaient facilement alors 5 et 6 dollars pièce, bien que ce fut juste après la guerre de 1812 à un moment où l'argent était rare. Howes devint millionnaire et fit beaucoup de bien avec sa fortune. On fabrique encore aujourd'hui des équerres à l'endroit même où la première fut faite il y a plus de quatre-vingt-dix ans.

Prix pour inventions

Le gouvernement français offre un prix de 20,000 francs pour la découverte d'un agent capable de dénaturer l'alcool et qui soit meilleur que celui que l'on emploie actuellement. Le goût et l'odeur de cet agentne doivent pas être fort et repoussant au point de nuire à l'usage de l'article dénaturé. Les substances solubles laissant des dépôts sur les mèches ou dans des tubes fins, tel le sel de cuisine, ne sauraient convenir. La volatilité de l'agent sauraient convenir. La volatilité de l'agent dénaturant doit être essentiellement la même que celle de alcool, de telle sorte que cet agent ne puisse être éliminé par distillation fractionnée. Il ne doit pas renfermer de substance capable d'attaquer les métaux. Il ne doit pas être vénéneux comme le bichlorure de mercure; il doit être suffisamment bon marché pour ne pas entraver l'usage de l'alcool pour les besoins industriels et domestiques; il ne doit pas exister normalement dans l'alcool du commerce, et sa présence dans l'alcool doit être facile à découvrir.

Un autre prix de 50,000 francs est offert pour une invention permettant d'utiliser l'alcool pour l'éclairage, de même qu'on utilise aujourd'hui le pétrole.

Population future de New York

Dans son discours à la Savings Bank Association, M. Vanderlip citait l'expert comptable du gouvernement des Etats-Unis comme prédisant positivement que le plus grand New York aurait une population de 8,500,000 âmes lorsque l'émission récente des obligations de 4 pour cent viedrait à échéance. A ceci le *Wall Street Journal* ajoute:

"L'expert-comptable des Etats-Unis pouvait faire cette prédiction sans crainte de se tromper. Au cours des vingt-cinq dernières années la population de New York a augmenté de 110 pour cent. La récente émission d'obligations viendra a échéance dans cinquaunte années. Si la population de New York augmente dans les mêmes proportions au cours des vingt-cinq prochaines années, elle s'élevera à 8,450,000 âmes en 1930, soit au chiffre que, d'après l'expert comptable du gouvernement, elle devrait atteindre dans cinquante années. Même si l'on estime la population future de New York avec plus de réserve, il semblerait que l'expert-comptable du gouvernement soit par trop conservateur sans ses calculs. Le président du conseil de comté de Londres prédisait récemment que la population du plus grand Londres en 1930 s'élèverait à 11 millions d'âmes, ce qui répresenterait une augmentation de 67 pour cent en vingt-cinq ans. Si l'on prend 67 pour cent comme base de l'augmentation, la population de New York a l'époque de l'échéance des obligations de 4 pour cent s'élèverait à 11 millions d'âmes, soit 2,500,000 âmes de plus que ne prédit l'expert-comptable du gouvernement. La population de New York augmente en réalité plus vite que celle de Londres, de sorte qu'on peut prédire sans crainte de se tromper qu'à l'époque de l'échéance des obligations de 4 pour cent, sa population égalera ou surpassera celle de Londres à ce moment-là, bien que le plus grand Londres ait aujourd'hui 2,500,000 âmes de plus que le plus grand New York."

Répondre à une lettre ou exécuter une commande avec célérité est tout bonnement exaspérant quand à la promptitude ne se joint pas l'exactitude. Cela est surtout vrai quand le lettre ou la commande viennent de très loin et que le temps par suite est un point capital. Nos lecteurs trouveront que les fabricants qui nous chargent de leurs annonces donnent un soin tout particulier à leur commerce extérieur et qu'ils ne tolèrent point les délais inutiles.

INTENTIONAL SECOND EXPOSURE

L'automobile américaine

Les automobiles américaines deviennent de plus en plus en vogue parmi les clients étrangers. On trouve aujourd'hui les automobiles américaines dans toutes parties du monde, et l'emploi de l'automobile commerciale est de plus en plus commun. Dans un des derniers numéros d'une publication américaine, *Modern Methods*, apparait une interview avec M. William E. Metzger, président de la Tri-State Automobile Association, dans laquelle M. Metzger donne quelques renseignements intéressants sur l'industrie des automobiles américaines. Nous reproduisons ce qui suit:

"L'automobile est ici et elle y restera. Inutile d'en douter. La phase expérimentale est passée et la manufacture des automobiles est aujourd'hui une industrie fermement établie, où l'imagination enthousiaste n'a plus rien à faire: elle a tout le caractère de la permanence. On entend souvent comparer l'automobile à la bicyclette et l'on dit qu'elle disparaitra comme celle-ci, que c'est le sort de toutes les toquades. C'est une erreur. Il n'y a pas cinq hommes sur 5,000 qui, ayant possédé des automobiles, ne continueront pas à les employer si leurs moyens le leur permettent.

"Ce qu'on appelle toquade est le salut du commerce des automobiles. N eut été l'enthousiasme de ceux qui ont du bien-être, le sang sportif, peut-on dire, des riches, il est douteux que l'automobile fût sortie de ses grossiers débuts et fut devenue la machine très perfectionnée qu'elle est aujourd'hui. Les hommes qui ont des moyens cherchant à satisfaire leur goût pour la vitesse et le plaisir, ont fourni les capitaux qui ont permis aux meilleurs cerveaux du pays de produire quelque chose qu'il vaut la peine de posséder en fait de voiture sans cheval. Les riches recueillent les fruits de leur bonté involontaire en obtenant des machines qui sont élégantes, stables et moins coûteuses à entretenir. Il existe un autre point de contraste entre le commerce de bicyclettes et le commerce d'automobiles, et je dois le savoir, car j'étais dans le commerce des bicyclettes à la naissance de l'automobile, je veux parler de la différence dans la base du commerce. Dans le commerce des bicyclettes, aux jours de sa plus haute splendeur, le prix de revient du produit n'était pas supérieur de 25 pour cent au prix de vente. Il n'en est pas ainsi dans le commerce des automobiles. Prenez une fabrique, quelque grande qu'elle soit, et j'ose affirmer qu'en dépit de toute l'économie possible—j'entends, cela va sans dire, que le travail sera bien fait et les matériaux de bonne qualité—j'ose affirmer qu'il sera impossible de produire des machines à moins de 50 pour cent de leur prix de vente. Et je ne parle ici que de l'assemblage des parties et je ne prends nullement en considération les autres dépenses, telles que salaires, etc.

Le fonctionnement d'une grande fabrique d'automobiles demande des capitaux énormes. Ici nous employons 1,400 hommes, et entre cette fabrique et une autre qui fait maintenant partie de notre compagnie, nous fabriquons à peu près tout ce qui s'emploie dans une automobile, et quand je vous dirai que nous avons emmagasiné 2,000 moteurs à gaz et qu'une fabrique de machines travaille jour et nuit sur nos commandes pour nous permettre d'exécuter les nôtres, vous pourrez comprendre que j'aî raison de dire que l'automobile n'est pas précisément près de disparaitre. Des hommes d'affaires entendus ne vont pas employer leur argent à la construction d'une fabrique à l'épreuve du feu, à l'achat de machines coûteuses, à l'emploi des meilleurs ouvriers mécaniciens qui se puissent obtenir, à l'achat de biens immeubles d'un prix très élevé, à moins quels ne croient, à moins qu'ils ne soient raisonnablement assurés que le commerce des automobiles est un commerce permanent. Le développement de l'automobile a été le rêve de ma jeunesse, et je dois dire qu'il s'est développé bien plus vite que je n'avais osé l'espérer.

"—Quelle est votre opinion quant à l'effort constant que l'on fait pour augmenter la puissance des machines? Croyez-vous que les grosses voitures sont près d'avoir atteint un maximum?

—Je suis porté à le croire. La grande armée des propriétaires d'automobiles n'ont en réalité pas besoin d'une puissance supérieue à celle que leur offre les voitures de touristes ordinaires. Le seul avantage de la puissance c'est de pouvoir dépasser une autre automobile et d'arriver au sommet d'une côte quelques secondes avant elle. L'autre automobile arrivera fort bien au haut de la colline. Je crois que les voitures finiront par acquérir des dimensions modérées, de telle sorte que leur entretien ne soit pas trop coûteux. La question de l'entretien n'est pas une question négligeable dans une machine. Plus la puissance est faible, plus le mécanisme est éprouvé.

—Qu'a-t-on fait pour résoudre le problème du bandage?

—Beaucoup. Le point capital c'est d'avoir un plus gros coussin d'air. On demande pour ce motif de plus gros bandages. On a trouvé qu'ils durent plus longtemps, que la machine s'use moins vite parce qu'elle est soumise à moins de cahots et que son mouvement est plus doux. Evidemment il faut plus de caoutchouc et le bandage coûte davantage, mais d'un autre côté il dure plus longtemps. L'accumulation des moteurs prouve suffisamment que l'on croit fermement que l'usage de la gazoline se maintiendra. Mais il y a un côté du commerce des automobiles qui a une sorte de fascination pour moi: ce sont ses *possibilités commerciales*, j'entends la manufacture de véhicules destinés au transport des marchandises.

"J'ai cru un jour que nous avions fait fausse route, que nous avions commencé du mauvais côté, et je me suis efforcé de faire construire des machines ayant pour but le transport des marchandises. Envisageant la chose du point de vue d'un courtier de commerce, je voyais dans l'automobile de merveilleuses *possibilités*. Les possibilités sont toujours là, mais je me rends compte maintenant qu'il était sage de commencer par l'autre côté, le côté du plaisir. Il est douteux que les hommes d'affaires, pour qui un sou est un sou, eussent fourni les fonds nécessaires aux modifications répétées que nécessitait l'évolution de l'auto. Je suis d'avis, toutefois, que le moment est proche où le véhicule commercial s'imposera aux grandes maisons de commerce, et que des machines seront produites dont l'entretien coûtera moins qu'une couple de chevaux et qui permettront de livrer les marchandises beaucoup plus rapidement. Une machine ne souffre jamais d'épuisement physique et quoique, comme pour les chevaux, on peut en abuser lamentablement, elle peut, si elle est convenablement traitée, faire le travail de chevaux dans la proportion de cinq à un; une seule machine pour faire le travail de cinq voitures trainées par des chevaux! Sous ce rapport encore, le développement de la machine est pour ainsi dire illimitté, et c'est là un autre argument en faveur de mon opinion, à savoir que l'automobile est une voiture qui n'est point destinée à disparaître et que sa manufacture constituera une des industries les plus stables des Etats-Unis.

—Quelle est votre opinion quant aux expositions d'automobiles?

—Je crois qu'il devrait y avoir une grande exposition d'automobiles pour l'industrie seule. Des expositions locales pourraient se faire comme d'habitude à Detroit, New York, Chicago. Je crois qu'il y aura une exposition nationale ou internationale en 1907 pour l'industrie seule.

—Et quant à la distribution du commerce, M. Metzger, est-ce que l'on fait bon accueil aux machines américaines à l'étranger?

—On les achète de plus en plus. Notre commerce extérieur augmente rapidement et nous expédions des machines dans toutes les parties du monde. Londres est en train de devenir un excellent marché pour les machines américaines, mais les automobiles construites aux Etats-Unis sont expédiées dans toutes les contrées du globe. Les villes de la côte du Pacifique achètent aujourd'hui beaucoup d'automobiles, et le Midi en prend plus que jamais. Cela est dû au bien-être que règne partout dans le pays. Le Midi s'enrichit rapidement; ses manufactures, son agriculture se développent avec une rapidité incroyable. Somme toute, il me semble que les gens de ce pays ont à se plaindre de bien peu de choses."

Outils agricoles americains en Allemagne

M. Harris, consul des Etas-Unis à Mannheim dit que des milliers de machines agricoles américaines ont été vendues dans l'Allemagne du sud-ouest, et que cependant les deux-tiers des recoltes de foin et de grain s'y font à la main. La supériorité des produits américains, machines à coudre, machines à écrire, souliers, meubles de bureaux et nombre d'autres articles, n'a pas peu contribué à les faire accepter pour ainsi dire universellement.

Etrange procédé de greffage

Quelques propriétaires de bois précieux font des expériences dans la partie méridionale du Mexique avec les noyers. Le vulgaire ne sait généralement pas qu'il y a bois de noyers et bois de noyers, et que seules certaines variétés sont considérées comme précieuses au point de vue commercial. Or, on cherche maintenant à rendre précieuses les variétés qui ne le sont pas. Et le procédé employé est vraiment curieux:

Commerce extérieur dans le pays même

Les Américains qu'on accuse d'indifférence pour le commerce d'exportations, et leur nombre n'est point petit, peuvent bien ne s'être jamais demandé pourquoi ils ne sont pas forcés comme les Allemands par exemple, d'aller chercher du commerce à l'étranger, mais il y a certainement au moins une raison pour laquelle ils peuvent regarder le commerce d'outre-mer avec plus ou moins de complaisance, sinon d'indifférence. Une brève étude des statistiques de l'immigration des Etats-Unis jettera beaucoup de lumière sur le sujet.

Pendant que les Allemands emploient toute leur énergie à induire les citoyens des pays étrangers à acheter leurs produits, des milliers d'étrangers arrivent chaque semaine aux Etats-Unis où ils deviennent les consommateurs d'innombrables produits américains et les créateurs d'industries et d'entreprises sans nombre qui, à leur tour, créent des marchés pour d'autres marchandises. Ainsi, tandis que l'Allemand doit franchir les frontières de sa patrie pour créer un marché pour ses marchandises, à moins pourtant qu'il ne se contente de les vendre exclusivement à ses propres concitoyens, on peut dire dans un sens que le commerce extérieur du monde se rend directement et dans une large mesure en Amérique.

Il est vrai que lorsqu'un Européen vient en Amérique comme immigrant, il devient immédiatement Américain, à ne considérer que les statistiques commerciales, mais d'un autre côté il est tout aussi vrai que c'est un homme dont on désire le commerce, commerce qu'on peut dès lors avoir dans ce pays et qu'on ne pourrait autrement obtenir qu'en se rendant dans le pays d'origine du nouveau venu.

Le commerce national de l'Amérique se développe ainsi chaque année avec une rapidité extraordinaire et continuera à se développer tant que le pays sera prospère; et tant que les citoyens des autres pays continueront à affluer en Amérique, à y absorber les produits américains, à contribuer à l'édification d'industries américaines, le manufacturier américain sera assez occupé chez lui sans donner beaucoup d'attention au commerce d'exportation.

Il est heureux, toutefois, pour l'avenir du commerce américain en général, que cette façon d'envisager la situation ne détruise pas entièrement l'intérêt que portent au commerce d'exportation les représentants les plus progressifs, les plus éclairés de l'industrie manufacturière américaine. L'idée dominante du moment dans la plupart des ateliers de l'Amérique c'est que tous les temps sont bons pour l'exportation et que c'est par les clairs soleils que se fait le meilleur foin.

On fait aujourd'hui des horloges qui disent les heures au lieu de les frapper, grâce à une application ingénieuse du phonographe. Elles sont construites de façon à nommer les heures dans plusieurs degrés de modulation, quelques-uns assez élevés pour réveiller le dormeur dont le sommeil semble inattaquable.

La fabrication de briques de verre pour édifices aussi bien que pour le pavage est aujourd'hui une industrie européenne parfaitement reconnue. Comme d'ordinaire, les Allemands ont poussé l'invention plus loin que n'importe qui. A Hamburg on a élevé des murs là où la lumière est nécessaire et où pourtant, pour se conformer aux réglements de la police, les murs ne doivent pas avoir de fenêtres et doivent, de plus, être à l'épreuve du feu. Ces briques se fabriquent dans trois établissements dans l'Allemagne de l'est. Elles sont translucides, c'est-a-dire qu'elles laissent passer la lumière sans qu'on puisse voir distinctement les objets à travers.

Un nouvel instrument de mort a été inventé. Un gentilhomme lithuanien a imaginé un canon, actionné par l'électricité, lequel est capable de tirer de 4,000 à 12,000 coups à la minute. La portée de cette nouvelle arme est de trois milles, et sa puissance destructive, si tout ce qu'on en dit est vrai, fera vite oublier ce jouet banal qu'on appelle le fusil à répétition. Un homme suffit à la manœuvre du canon.

Il faudra cinq années pour achever le tunnel de Ratcliff-Rotherhithe qui se construit actuellement sous la Tamise. Il aura 6,883 pieds de long et un diamètre extérieur de 30 pieds; un passage de 16 pieds sera réservé aux voitures, et deux trottoirs de quatre pieds huit pouces et demi de largeur chacun, serviront aux piétons. Quand il sera achevé il y aura trois tunnels sous la Tamise à Londres.

Dans le verre poreux, qui se fabrique en France, les trous sont si petits que ni la poussière ni les courants d'air ne peuvent pénétrer, et cependant la ventilation est, dit-on, excellente.

On annonce qu'un mécanicien de Lancastre (Angleterre), a inventé une machine à coudre qui emprunte le fil nécessaire à deux écheveaux directement: plus de bobines, plus de navettes. —*Chicago Tribune.*

Fer contre acier

Pendant les dix dernières années du siècle qui vient de se clore, les progrès réalisés dans la fabrication de l'acier et l'emploi de ce métal là où s'employait d'abord le fer forgé, ont fait croire à des observateurs capables que ce dernier ne jouerait bientôt plus dans la métallurgie qu'un rôle sans importance. Nombre de grands établissements—y compris celui de Carnegie—abandonnèrent entièrement le puddlage. On substitua l'acier au fer partout où l'on put et l'on déclarait que la substitution d'un metal homogène bien fait, comme l'acier, à un metal non homogène comme le fer forgé, était assurément un pas fait dans la bonne direction. Mais depuis le commencement du vingtième siècle on semble revenir au fer forgé. Une expérience déjà longue avec l'acier a montré que pour certaines constructions il n'est pas aussi satisfaisant qu'on aurait pu le croire. Il y a quelques années, la pointe de fer dut pour ainsi dire disparaitre du marché et où se rencontrent souvent nombre de fissures, céder la place à la pointe d'acier; de nombreux consommateurs ont trouvé une raison de se plaindre dans le fait que cette dernière ploie facilement, et il a également été démontré que les structures où l'on a employé les clous d'acier ne tiennent guère longtemps, parce que les clous se rouillent très rapidement sous la tête. Pour les échafaudages et autres constructions similaires, le clou d'acier ne mantient pas les pièces si fermement que le clou de fer; toutes ces raisons crée une demande pour l'ancien clou de fer. Les ferblantiers et les couvreurs se plaignent également de ce que les feuilles de tôle étamées et galvanisées de l'heure actuelle ne durent point si longtemps que celles qui se faisaient il y a vingt-cinq ans. Quant aux tuyaux en fer forgé, malgré le prix de revient plus élevé, la demande a été suffisante pour employer plussieurs usines importantes à la manufacture de ce produit. Pour les tubes de chaudières, on ne trouve pas l'acier satisfaisant, et la plupart des tubes de locomotive se font aujourd'hui en fer au charbon. Une preuve frappante de la tendance nouvelle se trouve dans le fait que l'un des plus considérables fabricants d'acier du pays ne permet pas qu'un tube d'acier soit employé dans une seule des chaudières de sa fabrique, non plus qu'une tôle d'acier sur les toits de ses batiments.

D'un autre côté, quand le fer et l'acier sont soumis à un effort de flexion, ils ne se comportent pas de la même manière Une autorité en la matière affirme qu'un essieu de fer bien fait, dont la résistance du métal à l'allongement est de 50,000 livres par pouce carré, peut supporter le même effort de flexion que l'acier dont la résistance à l'allongement est de 80,000 or 85,000 livres. Mais c'est surtout pour les fils métalliques de clôture que l'acier a été trouvé par trop imparfait.

L'industrie des fils d'acier pour clôture a pris des proportions considérables. Des certaines de brevets ont été délivrés pour antant de manières de joindre les fils, et les voyageurs qui ont parcouru l'ouest ont très certainement été frappés des milles et des milles de clôture qui entourent les fermes, etc. A mesure que le bois devient plus rare, la clôture en fils métalliques augmente d'importance, et sa durabilité devient une question sérieuse. On trouvera dans une autre colonne de ce numéro une description de méthodes employées pour la fabrication des clôtures en fils métalliques, avec quelques suggestions sur la solution possible du problème. Il semblerait que, si le fer forgé pouvait s'obtenir en masses suffisamment grosses pour que les fissures et les soudures défectueuses soient éliminées, il deviendrait encore un redoutable rival de l'acier.

La langue anglaise

M. Church Howe, consul-général des États-Unis à Anvers, écrit ce qui suit :—

Le fait que près de la moitié du trafic maritime à Anvers se fait sous pavillons anglais et américain, a presque transformé Anvers en un port de langue anglaise. Les autorités se rendent compte de ce fait et encouragent l'étude de l'anglais dans toutes les classes de la société. Des cours du soir gratuits pour l'enseignement exclusif de l'anglais, organisés par les autorités de la ville, sont suivis pas des milliers d'élèves, et l'on consacre une attention spéciale à l'étude de l'anglais dans toutes les écoles, publiques ou particulières. On se rend si généralement compte de la nécessité d'acquérir une connaissance pratique de l'anglais, que l'initiative privée a secondé les efforts des éducateurs, et des clubs composés des commis et employés des maisons de commerce, des banques, etc., ont été formés et sont connus sous le nom de Clubs mutuels pour l'enseignement de l'anglais, et leur influence se répand rapidement. Les membres de ces clubs, dans leurs efforts pour acquérir la langue commerciale du monde font preuve d'une énergie et d'une détermination extraordinaires.

Ce désir de populariser la langue anglaise n'est pas limité à la Belgique, il s'est étendu à l'Allemagne, où de ordres récents du gouvernement exigent que les fonctionnaires et les employés des chemins de fer apprennent la anglaise de manière à pouvoir la parler. Des écoles d'instruction ont déjà été établies dans ce but à Munich et à Nuremberg par le gouvernement allemand. Il n'y a pas à douter que la langue anglaise soit en train de devenir dans tous les centres de commerce de l'Europe occidentale l'intermédiare commercial international.

Est-ce que l'acier se fatigue?

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Los Aperos de Labranza Americanos en Alemania

El Cónsul Harris, de Mannheim, dice que miles de instrumentos agricolas americanos se han vendido en el Sudoeste de Alemania, y sin embargo, todavia se cosecha allí á mano dos terceras partes del heno y de los granos. La superioridad de las máquinas de coser, registros de dinero, máquinas de escribir, zapatos, muebles de oficina y otros muchos articulos de manufactura americana ha ayudado á hacer casi universal su importación.

La competencia es muy activa en America, y el resultado es que los manufactureros que predominan estan produciendo articulos de la mejor calidad en material y hechura que pueden producir los más hábiles mecánicos del mundo. Sólo nuestros manufactureros más prósperos y progresivos estan en posición de ocuparse en el comercio de exportación, y esto se refiere especialmente á los fabricantes de aperos de labranza y maquinaria agricola. Un examen de las paginas de la "Export Implement Age" dará á conocer nuestros principales manufactureros, quienes están preparados para atender debidamente al comercio de exportación.

Muchos de los manufactureros americanos están tan ocupados para abastecer el mercado americano, que nunca han atendido debidamente al comercio de otras naciones. Nuestros principales manufactureros, sin embargo, se han aprovechado de las oportunidades que ofrecen los mercados del extranjero, y han establiecido despartamentos de exportación, para atender allí cuidadosamente á sus negocios con el extranjero. Los que se anuncian en la "Export Implement Age" son fabricantes de esta clase, y nuestros lectores hallarán que son activos y corteses en sus relaciones comerciales.

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Fer contre acier

Pendant les dix dernières années du siècle qui vient de se clore, les progrès réalisés dans la fabrication de l'acier et l'emploi de ce métal là où s'employait d'abord le fer forgé, ont fait croire à des observateurs capables que ce dernier ne jouerait bientôt plus dans la métallurgie qu'un rôle sans importance. Nombre de grands établissements—y compris celui de Carnegie—abandonnèrent entièrement le puddlage. On substitua l'acier au fer partout où l'on put et l'on déclarait que la substitution d'un métal homogène bien fait, comme l'acier, à un metal non homogène comme le fer forgé, était assurément un pas fait dans la bonne direction. Mais depuis le commencement du vingtième siècle on semble revenir au fer forgé. Une expérience déjà longue avec l'acier a montré que pour certaines constructions il n'est pas aussi satisfaisant qu'on aurait pu le croire. Il y a quelques années, la pointe de fer dut pour ainsi dire disparaître du marché et où se rencontrent souvent nombre de fissures, céder la place à la pointe d'acier ; de nombreux consommateurs ont trouvé une raison de se plaindre dans le fait que cette dernière ploie facilement, et il a également été démontré que les structures où l'on a employé les clous d'acier ne tiennent guère longtemps, parce que les clous se rouillent très rapidement sous la tête. Pour les échafaudages et autres constructions similaires, le clou d'acier ne mantient pas les pièces si fermement que le clou de fer; toutes ces raisons crée une demande pour l'ancien clou de fer. Les ferblantiers et les couvreurs se plaignent également de ce que les feuilles de tôle étamées et galvanisées de l'heure actuelle ne durent point si longtemps que celles qui se faisaient il y a vingt-cinq ans. Quant aux tuyaux en fer forgé, malgré le prix de revient plus élevé, la demande a été suffisante pour employer plussieurs usines importantes à la manufacture de ce produit. Pour les tubes de chaudières, on ne trouve pas l'acier satisfaisant, et la plupart des tubes de locomotive se font aujourd'hui en fer au charbon. Une preuve frappante de la tendance nouvelle se trouve dans le fait que l'un des plus considérables fabricants d'acier du pays ne permet pas qu'un tube d'acier soit employé dans une seule des chaudières de sa fabrique, non plus qu'une tôle d'acier sur les toits de ses bâtiments.

D'un autre côté, quand le fer et l'acier sont soumis à un effort de flexion, ils ne se comportent pas de la même manière Une autorité en la matière affirme qu'un essieu de fer bien fait, dont la résistance du métal à l'allongement est de 50,000 livres par pouce carré, peut supporter le même effort de flexion que l'acier dont la résistance à l'allongement est de 80,000 or 85,000 livres. Mais c'est surtout pour les fils métalliques de clôture que l'acier a été trouvé par trop imparfait.

L'industrie des fils d'acier pour clôture a pris des proportions considérables. Des certaines de brevets ont été délivrés pour autant de manières de joindre les fils, et les voyageurs qui ont parcouru l'ouest ont très certainement été frappés des milles et des milles de clôture qui entourent les fermes, etc. A mesure que le bois devient plus rare, la clôture en fils métalliques augmente d'importance, et sa durabilité devient une question sérieuse. On trouvera dans une autre colonne de ce numéro une description de méthodes employées pour la fabrication des clôtures en fils métalliques, avec quelques suggestions sur la solution possible du problème. Il semblerait que, si le fer forgé pouvait s'obtenir en masses suffisamment grosses pour que les fissures et les soudures défectueuses soient éliminées, il deviendrait encore un redoutable rival de l'acier.

La langue anglaise

M. Church Howe, consul-général des Etats-Unis à Anvers, écrit ce qui suit :—

Le fait que près de la moitié du trafic maritime à Anvers se fait sous pavillons anglais et américain, a presque transformé Anvers en un port de langue anglaise. Les autorités se rendent compte de ce fait et encouragent l'étude de l'anglais dans toutes les classes de la société. Des cours du soir gratuits pour l'enseignement exclusif de l'anglais, organisés par les autorités de la ville, sont suivis pas des milliers d'élèves, et l'on consacre une attention spéciale à l'étude de l'anglais dans toutes les écoles, publiques ou particulières. On se rend si généralement compte de la nécessité d'acquérir une connaissance pratique de l'anglais, que l'initiative privée a secondé les efforts des éducateurs, et des clubs composés des commis et employés des maisons de commerce, des banques, etc., ont été formés et sont connus sous le nom de Clubs mutuels pour l'enseignement de l'anglais, et leur influence se répand rapidement. Les membres de ces clubs, dans leurs efforts pour acquérir la langue commerciale du monde font preuve d'une énergie et d'une détermination extraordinaires.

Ce désir de populariser la langue anglaise n'est pas limité à la Belgique, il s'est étendu à l'Allemagne, où de ordres récents du gouvernement exigent que les fonctionnaires et les employés des chemins de fer apprennent la anglaise de manière à pouvoir la parler. Des écoles d'instruction ont dèjà été établies dans ce but à Munich et à Nuremberg par le gouvernement allemand. Il n'y a pas à douter que la langue anglaise soit en train de devenir dans tous les centres de commerce de l'Europe occidentale l'intermédiare commercial international.

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El Automóvil Americano

Los automóviles americanos se están haciendo rapidamente los favoritos de los compradores extranjeros. En todas partes del mundo se encuentran hoy los carruajes de motor americanos, y está aumentando constantemente el uso de los automóviles comerciales. En un número reciente del "*Modern Methods,*" publicación americana, aparece la relación de una interesante entrevista con Mr. William E. Metzger, presidente de la "Tri-State Automobile Association" en que Mr. Metzger presenta algunos de los más interesantes puntos de la industria automoviliaria americana como sigue:

"El automóvil ha venido para permanecer aquí, no hay que dudarlo. El periodo experimental ha pasado, y se ha establecido la industria de su fabricación bajo sólidas bases que aseguran su conservación. Oimos hablar mucho sobre que la historia del automóvil, tendrá el fin que la de la bicicleta, y despues de algún tiempo morirá como mueren todas las modas pasajeras. Esto es un error. No hay cinco hombres entre 5,000 de los que han poséido un automóvil que no continúe teniéndolo, si se lo permiten sus recursos.

"El llamado "faddism" (capricho pasajero) es la salvación de la industria automoviliaria. Si no hubiera sido por el entusiasmo de los pudientes por el espíritu de "sport" de los ricos, es dudoso que las rudas máquinas con que se empezó se hubiesen ido mejorando hasta llegar á su presente estado de perfección. Hombres de grandes recursos, llevados de su gusto por la velocidad y el placer, han facilitado el capital con que los mejores ingenios del país han llegado á producir algo digno de conservarse en el ramo fabril de carruajes sin caballos. Los ricos están recogiendo el beneficio de su inintencional prodigalidad, en la obtención de unas máquinas elegantes, estables y de menos costoso mantenimiento. Hay otro contraste entre el negocio de la bicicleta y el del automóvil. En el negocio de la bicicleta en su más floreciente periodo el costo de producción no pasaba de 25 por ciento del precio á que se vendia. En el negocio del automóvil no sucede esto. Tómese cualquier factoria, por grande que sea, y me atrevo á asegurar que con toda la economía posible que no afecte una buena mano de obra y un buen material, sería imposible producir esas máquinas con un costo de menos de un 50 por ciento de su precio de venta. Con esto me refiero solamente al trabajo de unir sus partes, sin contar con los gastos accesorios, tales como los de salarios, etc.

"Para explotar una gran planta automoviliaria se requiere el desembolso de un gran capital. Aquí en ésta empleamos 1,400 obreros, y entre ésta y otra que es hoy propiedad de nuestra compañía, fabricamos cuanto entra en la composición de un automóvil, y cuando os digo que tenemos almacenados 2,000 motores de gas y que una fábrica de motores está trabajando día y noche para poder despachar nuestros pedidos y dar abasto al negocio, comprenderéis que tengo razón para decir que el automóvil ha venido para quedarse. Los hombres de negocio sagaces no van á prodigar su dinero en la erección de fábricas con edificios á prueba de fuego, en la compra de maquinaria costosa, y en el empleo de los más ingeniosos y caros mecánicos y en costosos terrenos si no creen estar seguros de un negocio permanente. El desarrollo del automóvil fué el sueño de mi juventud, y debo decir que su realización ha superado mis mayores esperanzas."

"¿Cuál es vuestro parecer sobre los constantes esfuerzos para obtener mayor potencia? ¿Creeis que los más grandes automóviles que existen en la actualidad han llegado á su máximo?"

"Me inclino á creer que sí. El gran ejército de dueños de automóviles no necesitan á la verdad mayor potencia de la que ahora obtienen en los automóviles excursionistas. La única ventaja que puede ganar con tener una fuerza mayor es el negocio de pasar al competidor en el camino cuesta arriba y llegar á la cumbre de la colina unos pocos segundos antes que él. Yo creo que el tamaño de los carruajes de motor se reducirá generalmente á un tipo moderado, cuyo mantenimiento no sea tan costoso. El mantenimiento de un automóvil es cuestión que debe considerarse en una máquina. Mientras más ligera es la fuerza, mayor es su trabajo en la máquina."

"¿Qué se ha hecho para resolver el problema de la llanta?"

"Muchisimo. Lo importante es tener una llanta neumática más ancha. Las llantas tubulares neumáticas de mayor diámetro son las más buscadas. Se ha hallado que duran más, gastándolas menos el traqueo de la máquina, y haciendo más suave y cómodo el movimiento del automóvil. Esto requiere mayor cantidad de caucho y un ligero aumento en el costo original, pero compensa por esto con mucho la duración de la llanta. La acumulación de estos motores habla muy alto en favor de la continuación del uso de la gasolina. Pero hay un punto que me fascina en el negocio de los automóviles: tal es sus posibilidades comerciales, Quiero decir, la manufactura de esos vehiculos para el comercio.

Una vez me pareció que habíamos entrado en este negocio de atrás para adelante y recomendé la manufactura de esos vehiculos para fines comerciales. Considerando el asunto desde el punto de vista del vendedor, vi maravillosas posibilidades. Las posibilidades existen aún, pero hoy comprendo que lo mejor fué desarrollar el automóvil desde el punto de vista del placer. Es dudoso que los hombres de negocios, inclinados á ahorrar todo lo posible en el costo de producción, hubieran emprendido los repetidos cambios hechos necesarios en la evolución del automóvil. Es mi opinion, sin embargo, que se acerca el tiempo en que el vehiculo comercial atraerá la atención de las grandes empresas, y se producirán máquinas menos costosas tanto de fabricación como de mantenimiento que una pareja de caballos, y mucho más rapidas para la conducción y entrega de mercancías. Una máquina nunca padece de cansancio, y aunque se las puede abusar como á los caballos, con cuidado en el manejo, puede hacer el trabajo de los caballos en proporción de cinco á una, es decir, haciendo una máquina el trabajo de cinco parejas de caballos. Las posibilidades en este particular son ilimitables, y este es otro argumento en favor de mi aserción que el automóvil ha venido para establecerse permanentemente, y su manufactura será una de las industrias más estables de los Estados Unidos."

"¿Qué pensáis sobre los arreglos para una exhibición de automóviles?"

"Pienso que se debería celebrar una gran exhibición para el comercio solamente, y que luégo se celebren exhibiciones locales en Detroit, Nueva York y Chicago, como de costumbre. Mi creencia es que una gran exhibición nacional ó internacional para el comercio se celebrará en 1907."

"Con respecto á la distribución de este negocio, Mr. Metzger, ¿ están siendo favorablemente recibidas estas máquinas en el extranjero?"

"Todos los dias se están haciendo con rapidez favoritas y ya exportamos nuestras máquinas á todas partes del mundo. Londres está ofreciendo un mercado excelente para las máquinas americanas, pero los automóviles

fabricados en los Estados Unidos, se están embarcando para todos los países de la tierra. Los lugares de las costas del Pacífico son ya hoy activos compradores de automóviles, y más de ellos que antes están yendo al Sud. El Sur está haciendo dinero rápidamente, y adelantando tanto en la industria fabril como en agricultura á un paso sin precedente. Considerándolo todo, me parece que el pueblo de esta nación tiene muy pocos motivos de queja."

Las Herramientas Mecánicas Americanas

El Cónsul de los Estados Unidos Brittain escribe desde Kiehl, Alemania lo siguiente: "Los manufactureros de herramientas mecánicas en toda Alemania y Francia conceden la superioridad de este producto americano, y obtienen de nuestros manufactureros todos los informes que pueden. En una conversación que tuve recientemente con el maquinista en jefe de la más grande fábrica de herramientas mecánicas de Alsace-Lorraine, se me enseñó un catálogo bellamente ilustrado, é impreso en papel americano. Me dijo que él coleccionaba los catálogos de los principales fabricantes americanos de herramientas mecánicas, é incorporaba en sus catálogos alemanes todo lo que consideraba más atrayente en los catálogos americanos. Dice que los americanos están á la cabeza en la manufactura de herramientas mecánicas por sus completos conocimientos en este ramo industrial y su habilidad en mostrar sus máquinas del modo más ventajoso posible.

Como ejemplo se nos citó la visita que hizo á América el principal comprador de la fábrica más grande de herramientas mecánicas de Francia. Ese señor dice que visitó cincuenta y dos fábricas de herramientas mecánicas en los Estados Unidos, y que quedó en extremo complacido con las finas atenciones que recibió en todas. Antes de visitar varias de las fábricas que más conocía, les hizo algunos pequeños pedidos, creyendo que sería esto la mejor introducción para que le recibiesen bien; pero halló que el aliciente era innecesario. Como resultado de aquella visita entendemos que la Compañía francesa ha hecho mayores pedidos á varias de las casas americanas.

Muchos comentarios se han hecho sobre la resistencia de los alemanes á enseñar sus máquinas á los extraños, sobre todo si son extranjeros. Aquí (Alemania) los supuestos compradores son tratados suspicazmente, y frecuentemente no se les permite la entrada, ó, si son admitidos en las fábricas sólo unas pocas máquinas se les enseña. El que me informa me dice que ni un experto puede obtener un secreto conocimiento al pasar por esos talleres. Los fabricantes ganan mucho tratando cortésmente á los supuestos compradores—Entiendo que los Krupps nos harán este año grandes pedidos de herramientas mecánicas.

El Hierro Contra El Acero

Durante la última década del siglo que terminó recientemente los adelantos en la manufactura del acero, y la substitución de este para las obras en que anterirmente se empleaba el hierro forjado condujeron á los observadores capaces á pensar que el metal últimamente mencionado tendría un lugar importante sólo en la metalurgia. Muchas de las casas más importantes dedicadas á esta industra, incluyendo la de Carnegie, abandonaron enteramente la producción del hierro. Donde quiera que fué posible se hizo que el acero ocupase el lugar del hierro, y se declaró que un metal homogeneo como el acero sustituiría ventajosamente á un metal que no es homogeneo, como el hierro forjado, que puede estar lleno de grietas. Pero los primeros años del siglo XX han marcado una distinta tendencia á volver al uso del hierro forjado. Extensos experimentos hechos con el acero han demostrado que no ha resultado ser tan satisfactorio para ciertas construcciones como se esperaba. Hace algunos años fué prácticamente desterrado del mercado el clavo de hierro por el clavo de acero cortado; pero habiendo hallado muchos consumidores motivos para quejarse, por la facilidad con que se doblan, se ha demostrado también que las estructuras hechas con clavos de acero no duraban por que se oxidaban rápidamente esos clavos bajo la cabeza. Para los andamios y otras obras semejantes el clavó de acero no tiene el mismo agarre que el clavo de hierro, y de aqui que se haya suscitado una creciente demanda para el clavo del antiguo estilo. También se ha alzado un clamor general entre los hojalateros y techadores, alegando que las planchas de hierro galvanizadas y la hojalata de la actualidad no duran tanto como las de hace veinte y cinco años. Para la tuberia ó cañería de hierro forjado, á pesar de su mayor costo, la demanda ha sido suficiente para dar ocupación á varias fábricas importantes dedicadas exclusivamente á la producción de este articulo. Como una notable ilustración de esta nueva tendencia podemos citar el caso de que uno de los importantes manufactureros de acero de este pais no permite se use un solo tubo de acero en una de las calderas de su fábrica, ni una plancha de acero en el techo de sus edificios.

Cuando se someten á la prueba para hallar sus resistencia á doblarse no dan el mismo resultado el hierro y el acero. Asegura una autoridad en la materia que un eje de hierro para carro bien hecho que acusa una fuerza tensible de 50,000 libras por pulgada cuadrada, resistirá tanta fuerza tensible de fibra como un eje de acero que acusa de 80,000 ó 85,000 libras por pulgada cuadradas. Pero el ejemplo más notable en que el acero ha sido pesado en la balanza y ha fallado, consiste en la manufactura del alambre para cercados.

La industria de fabricar alambre para cercas ha llegado á un desarrollo de enormes proporciones. Centenares de patentes se han otorgado en este país para la protección de diferentes modos de conectar los alambres, y todos los que viajen por los Estados del Oeste pueden observar las innumerables millas de cercas de alambre que rodean las haciendas, etc. A medida que va haciendose cada dia más escasa la madera, irá aumentando la importancia del alambre para cercas, y su duración constituye una seria cuestión. En otra columna de esta edición se hallará una descripcien de los métodos de hacer cercados de alambre, con sugestiones sobre la posible resolución del problema. La perspectiva parece ser que si se puede producir el hierro forjado en bastante grandes masas, con el fin de eliminar cualesquiera grietas y soldaduras defectuosas, llegaraá á ser otra vez el hierro forjado un poderoso rival del acero.

Conviene recordar que el peso no es siempre ventajoso en un instrumento. Una máquina de peso ligero, pero fuerte en las partes que requiere la fortaleza necesita una fuerza mucho menor para funcionar que una más pesadá.

Nuestros anunciadores comprenden muy bien la importancia de contestar con prontitud á todas las preguntas que reciben de paises extranjeros, y de atender sin dilación al despacho y embarque de los pedidos que reciben de los mismos. El tiempo es en nuestros días un asunto de la primera importancia, y no se patrocinan las dilaciones, especialmente en las relaciones comerciales con el extranjero.

Cronica del Progreso del Mundo por Invenciones

Un clavo ordinario ofrece una excelente ilustración de la diferencia entre los antiguos y los nuevos métodos. Anteriormente se cortaba en tiras el metal, y se convertian en clavos forjándolos á mano con el martillo uno por uno. Hoy se hacen de acero y son más fuertes al par que mas ligeros. Las tiras de acero se cortan con cizallas mecánicas al vapor y con ellas se alimenta una máquina de hacer clavos automática. Un operario atiende á tres de esas maquinas, y cada máquina rinde un clavo cada segundo (60 cada minuto).

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Se dice que el Profesor Francés Cerebotani ha perfeccionado un aparato que transmitirá por el alambre todas las peculiaridades de la letra de un hombre ó un dibujo, de modo que se podrán firmar cheques á 1,000 millas de distancia, o escribirse un documento legal, ó hacerse un dibujo. Sólo un alambre se requiere, y el mecanismo es muy sencillo. Un movimiento de reloj ejerce su acción sobre el alambre y una varita hace un movimiento circular, mientras que otra traza rayitas directamente perpendiculares ú horizontales.

En la mano de un hombre que accidentalmente habia perdido un dedo ha ingertado con feliz resultado un dedo de su pié el Profesor Von Eifelsberg, de Viena, el cual se espera que pronto podrá usar el paciente como dedo de la mano.

El Profesor Classen, de Aix-la-Chapelle, ha dado á luz un procedimiento para hacer alcohol de aserrin. Se trata la celulosa con ácido sulfúrico, gaseoso, y formada la glucosa, se convierte en alcohol por fermentación. Una tonelada de aserrín rinde unos cincuenta galones da alcohol crudo, ó veinte y cinco galones de alcohol absoluto. Se espera, sin embargo, que con el tiempo se podrán obtener treinta ó más galones por este procedimiento.

Se ha probado con buen éxito en el Pacifico del Sur un nuevo tipo de locomotora, por el sistema del "movimiento de mono" que se dice revolucionará la locomoción al vapor de los ferro-carriles. Un tren de 1,500 toneladas fué llevado por una de esas máquinas de Ogden á Wadsworth, Nev. Todo el mecanismo motriz lo tiene en los costados, y es asi de fácil acceso. El vapor se descarga con rapidez, y no ejerce presión retrógada. Se calcula que esa nueva máquina ahorrará de 25 á 40 por ciento en el consumo de combustible, pudiendo recorrer 54 millas con el consumo de una tonelada de carbón de piedra contra 28 millas por el actual sistema.

Según una publicación alemana, Suecia está proyectando aprovechar para generar electricidad hasta la última gota de agua que hoy se pierde en sus numerosas cascadas y rápidas corrientes de sus rios. Sus ingenieros están actualmente reconociendo sus montañas y se está aprontando el capital necesario para emprender las obras tan pronto como se completen los reconocimientos. Lo mismo puede decirse de Noruega, donde las aguas corren por cortas y más precipitadas distancias, pero á menudo en tremendo volumen. En Suecia se utilizará la fuerza desarrollada para aplicarse á toda clase de fábricas; en Noruega para explotar las minas de hierro y de cobre.

Los geógrafos que representan las principales naciones están trabajando en la formación de un mapa gigantesco de toda la tierra en una escala de 1 á 0.1,000,000, y el Profesor Penck, geógrafo alemán, informa que 69 hojas de las 437 proyectadas se han completado. El espacio de una milla será representado por 1-16 de pulgada de largo. Hay, por supuesto, muchos mapas de pequeñas areas trazados en mucho mayor escalas; pero representar la superficie total de todo el mundo conocido en la escala mencionada es una empresa de vasto interés.

Uno de los periódicos de Berlin habla de una nueva idea para pescar arenques. Un inventor alemán pone un micrófono en una caja de metal perfectamente impermeable, y la sumerje en el mar para descubrir si por ahi están pasando los peces. Un alambre conecta el micrófono sumerjido (que aumenta considerablemente el volumen de los pequeños sonidos) con un receptor ordinario, con el cual se oye lo que está pasando en la profundidad del mar. Excelentes resultados se han obtenido con este procedimiento en el Mar del Norte para indicar cuando están pasando los cardumes de arenques.

Ya se están construyendo relojes que hablan ó dicen las horas en vez de darlas, por medio, de una ingeniosa aplicación del fonógrafo. Se arreglan de modo que hablen en varios tonos, algunos bastante altos para despertar al que más profundamente esté dormido.

La fabricación de ladrillos de vidrio, tanto para edificios como para pavimentar, se ha hecho una reconocida industria europea. Como de costumbre los alemanes han llevado la invención más adelante que nadie. En Hamburgo se han erigido paredes de vidrio donde se requiere la luz, y donde los reglamentos de la policia requieren que las paredes no tengan ventanas y estén á prueba de fuego. Tres casas se dedican á la manufactura de ladrillos de vidrio en el Este de Alemania. Esos ladrillos son translucentes permitiendo la entrada de la luz, pero impidiendo se vea por fuera lo que hay ó sucede dentro.

Se ha inventado un nuevo y mortifero instrumento. Un caballero de Lituania, Theodor Troitz, ha inventado un cañón eléctrico que dispara de 4,000 á 12,000 tiros por minuto. Esa nueva arma tiene un alcance de tres millas, y su potencia destructiva es tal que, si todo lo que se le atribuye es exacto, dejará atrás como juguetes triviales los rifles de retrocarga. Sólo un hombre se requiere para manipular el cañón.

El nuevo tunel Ratchiff-Rotherhithe, que se está excavando actualmente bajo el rio Támesis necesitará cinco años para terminarse. Tendrá 6,883 piés de largo, con un diámetro exterior de 30 piés, lo cual permitirá un camino para carruajes, etc., de 16 piés de anchura, y dos caminos de 4 8½ pulgadas de ancho para pedestres. Cuando se complete habrá tres tuneles bajo el Támesis de Londres.

El vidrio poroso que se fabrica en Francia tiene tan diminutos los poros, que ni el polvo ni las corrientes de aire pueden penetrarlos, y sin embargo, proporcionan una excelente ventilación.

El Hacendado americano es el más próspero del mundo. ¿Cuál es la causa? El trabajo de mano es muy caro en América y muy escaso. El hacendado americano debe su prosperidad á los fabricantes de instrumentos y máquinas economizadoras de tiempo y trabajo, que les permiten, no sólo cultivar más tierra, sino lograr mayores cosechas y mejores precios por sus frutos á causa de su superior calidad.

Se anuncia que un mecánico de Lancashire, Inglaterra, ha inventado una máquina que cose directamente con dos carreteles de hilo, evitándose asi el tener que devanar las canillas y enhebrar las lanzaderas.—*Chicago Tribune.*

EXPORT IMPLEMENT AGE

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Ein unabhängiges Blatt, das ausschliesslich dem Exporthandel in landwirtschaftlichen Maschinen, Pumpen, Windmotoren und sämmtlichen Artikeln der Land- und Milchwirtschaft gewidmet ist.

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Im Firmenverzeichnis für Käufer das im ersten Theil dieses Blattes wiedergegeben ist, werden unsere geehrten Leser die betreffenden Waarenartikel in deutscher Sprache wiedergegeben finden. Es geschieht dies um ihnen die Möglichkeit zu geben, mit unseren Inserenten leichter korrespondiren zu können.

Amerikanische Maschinen aller Art und Sorten führen sich mehr und mehr im Auslande ein. Fabrikanten jedes Herrenlandes gebrauchen heute amerikanische Maschinen und Diejenigen welche es für sich selbst ausfinden wollen, werden zur Ueberzeugung gelangen, dass unsere Maschinen nicht allein gut und zuverlässig arbeiten, sondern dass sie auch bescheiden im Preise sind.

Unsere Inserenten sind sich bewusst wie wichtig prompte Antwort in Erwiederung auswärtiger Anfragen und wie ungemein werthvoll prompte und sorgfältige Aufmerksamkeit ist in der Ausführung und Versendung von Ordres. In unserem heutigem Zeitalter ist "Zeit" immer der erste Faktor der in Betracht kommt, Aufenhalt wird somit nirgends gebilligt, besonders nicht in Verbindung mit auswärtigem Handel.

Amerikanische Fabrikanten landwirthschaftlicher Geräthe erwarten von den auswärtigen Käufern keines Landes dass Waare von ihnen aus sentimentalem Grunde gekauft werde. Es ist uns darum zu thun, dass ausländische Käufer erst auf unsere Waaren aufmerksam gemacht werden und dann sorgfältig ihren Werth prüfen. Waaren bester Qualität zu bescheidenem Preise verkauft sprechen für die grosse Zunahme in der Ausfuhr amerikanischer Geräthe und landwirthschaftlicher Maschinen.

Eine Garnitur landwirthschaftlicher Geräthe kann nicht in eine Tage, oder in einem Jahre, selbst nicht in mehreren Jahren erfunden und perfekt gemacht werden. Wenn auch die amerikanischen Fabriken neu sind und in jeder Weise modern eingerichtet dastehen, sind ihre Erzeugnisse das Resultat jahrelanger Entwickelung und der Verausgabung ungeheurer Geldsummen und legen heute deutlichen Beweis ein von der Geschicklichkeit und Tüchtigkeit unserer Mechaniker und deren Leistungsfähigkeit.

Die Arbeitsfrage in der Landwirthschaft wird in gar sehr vielen Ländern eine höchst wichtige. Dadurch steigt selbstverständlich auch der Werth und die Nachfrage für landwirthschaftliche Maschinen. Ein Studium amerikanischer Maschinen und Geräthe beweist, besonders in den letzten paar Jahren, dass ein Durchschnittspferd in einem Tage mehr und bessere Arbeit mit viel weniger Kraftanwendung als früher zustande bringen kann. Eine Wirthschaft die mit den allerneuesten amerikanischen Maschinen ausgestattet ist, kann in Folge dessen mit einem nur geringen Theil der gewöhnlichen Ausgaben und mit geringster Anwendung menschlicher Arbeit in perfektester Weise die Arbeiten verrichten.

que même les plus grands des hôtels modernes n'oseraient entreprendre?

Der ungeheure Wuchs in der Ausfuhr amerikanischer Geräthe kann nur durch die Hervorragenheit der Waare und der Billigkeit derselben erklärt werden. Fabrikanten anderer Länder haben sich stets ungeheuerer Vortheile durch die engen kommerziellen Beziehungen mit den auswärtigen Märkten zu erfreuen gehabt, wohingegen der Exporthandel in landwirthschaftlichen Maschinen und Geräthen bis vor Kurzem sich allein auf das direkte Verlangen nach den hervorragenden amerikanischen Geräthen und Maschinen im Auslande zu beziehen hatte. Doch heute sind die bedeutendsten Fabrikanten dieser Waarenlinie in regstem Verkehr mit den auswärtigen Märkten und den Details und anderweitigen Geschäftsanforderungen des Exporthandels moderner Konkurrenz in jeder Weise gewachsen. Unsere geschätzten Leser werden deshalb es vortheilhaft finden, sich mit den Inserenten des *"Export Implement Age"* in flotter geschäftlicher Verbindung zu setzen.

Wird Stahl schwach?

Ein interessantes Problem, das oft bereits besprochen wurde, besteht in der Frage ob Eisen oder Stahl im Laufe der Zeit "geschwächt" werden und in ihren Eigenschaften einbüssen? Nach Ansicht des Herrn R. A. Hadfield, sagt das Blatt "Engineering," geschieht es wohl nicht, wenn das Material in seinem Urzustande richtig zubereitet ist. Sogennante Mängel dieser Art sind gewöhnlich darin zu finden, indem der Stahl entweder einen innern Riss hat der erst durch Prüfung seiner mikroskopischen Struktur entdeckt werden kann, oder dass derselbe beim Versand nicht in der besten Beschaffenheit war. Die sogennanten mysteriösen Mängel sind jedoch meistens auf die Wärmebehandlung zurückzuführen und leicht wahrnehmbar, wenn richtig untersucht. Ein Techniker schrieb über diesen Punkt jüngst, dass er nach langjähriger Erfahrung gefunden habe, dass Stahl in keiner Weise geschwächt werde —das heisst, unter normaler Arbeitsleistung; "einmal gut—immer gut" ist sein Maxim. Mehrere Probiranstellungen machte der Erfinder aus Versuchsstücken, welche eine Reihe von Jahren im Gebrauche waren; sie erwiesen sich theilweise erfolgreich, theilweise auch ohne Erfolg; er fand aber keinen Unterschied oder Zusammenbruch in den mechanischen Qualitäten. Vielleicht ist auch diese Konklusion eine richtige. Auch im Arsenal zu Watertown, die offizielle Probir-Anstalt der Vereinigten Staaten Regierung, wurden interessante Versuche mit Eisen angestellt. Die Probirstücke wurde vor dreiundzwanzig Jahren äusserst schwieriger mechanischer Behandlung unterworfen, d. h. sie wurden bis zur äussersten elastischen Gewalt gepresst und dann beiseite gelegt. In der Qualität konnte keine Veränderung wahrgenommen werden. Das Charakteristikum der früheren überanstrengten Beschaffenheit, die solange zuvor seien, die Stadt New York eine Bevölkerung wurde, blieb noch immer zurück.

Wir lenken die Aufmerksamkeit unserer geschätzten Leser auf die Annonce der Gesellschaft auf der zweiten Umschlagseite dieser Ausgabe, die nicht allein besonders moderne Ideen auf dem Gebiete der Reklame bekundet, aber auch etwas über die Pumpenfabrikation zu sagen hat.

Alle Diejenigen die sich für diesen Artikel interessiren, solltes es nicht unterlassen, sich sofort mit der auswärtigen Abtheilung der Gesellschaft in Verbindung zu setzen.

Cronica del Progreso del Mundo por Invenciones

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La isla de May, en la Gran Bretaña, posee hoy una sirena que en tiempo de niebla y de noche se oye a 18 millas de distancia. Otras sirenas se van a establecer cerca de los faros para proteger los buques que entren en el Firth of Forth.

Se dice que el Profesor Frances Cerebotani ha perfeccionado un aparato que transmitirá por el alambre todas las peculiaridades de la letra de un hombre o un dibujo, de modo que se podrán firmar cheques á 1,000 millas de distancia, ó escribirse un documento legal, ó hacerse un dibujo. Solo un alambre se requiere, y el mecanismo es muy sencillo. Un movimiento de reloj ejerce su acción sobre el alambre y una varita hace un movimiento circular, mientras que otra traza rayitas directamente perpendiculares u horizontales.

En la mano de un hombre que accidentalmente habia perdido un dedo ha ingertado con feliz resultado un dedo de su pié el Profesor Von Eifelsberg, de Viena, el cual se espera que pronto podra usar el paciente como dedo de la mano.

El Profesor Classen, de Aix-la-Chapelle, ha dado a luz un procedimiento para hacer alcohol de aserrin. Se trata la celulosa con ácido sulfúrico, gaseoso, y formada la glucosa, se convierte en alcohol por fermentación. Una tonelada de aserrin rinde unos cincuenta galones da alcohol crudo, o veinte y cinco galones de alcohol absoluto. Se espera, sin embargo, que con el tiempo se podrán obtener treinta ó mas galones por este procedimiento.

Se ha probado con buen éxito en el Pacífico del Sur un nuevo tipo de locomotora, por el sistema del "movimiento de mono" que se dice revolucionara la locomoción al vapor de los ferro-carriles. Un tren de 1,500 toneladas fué llevado por una de esas máquinas de Ogden á Wadsworth, Nev. Todo el mecanismo motriz lo tiene en los costados, y es asi de fácil acceso. El vapor se descarga con rapidez, y no ejerce presión retrógada. Se calcula que esa nueva máquina ahorrará de 25 á 40 por ciento en el consumo de combustible, pudiendo recorrer 54 millas con el consumo de una tonelada de carbón de piedra contra 28 millas por el actual sistema.

Según una publicación alemana, Suecia está proyectando aprovechar para generar electricidad hasta la última gota de agua que hoy se pierde en sus numerosas cascadas y rápidas corrientes de sus rios. Sus ingenieros estan actualmente reconociendo sus montañas y se está aprontando el capital necesario para emprender las obras tan pronto como se completen los reconocimientos. Lo mismo puede decirse de Noruega, donde las aguas corren por cortas y mas precipitadas distancias, pero á menudo en tremendo volumen. En Suecia se utilizará la fuerza desarrollada para aplicarse a toda clase de fábricas: en Noruega para explotar las minas de hierro y de cobre.

Los geógrafos que representan las principales naciones están trabajando en la formación de un mapa gigantesco de toda la tierra en una escala de 1 á 0.1,000,000, y el Profesor Penck, geógrafo alemán, informa que 69 hojas de las 437 proyectadas se han completado. El espacio de una milla será representado por 1-10 de pulgada de largo. Hay, por supuesto, muchos mapas de pequeñas areas trazados en mucho mayor escalas; pero representar la superficie total de todo el mundo conocido en la escala mencionada es una empresa de vasto interés.

Uno de los periódicos de Berlin habla de una nueva idea para pescar arenques. Un inventor alemán pone un micrófono en una caja de metal perfectamente impermeable, y la sumerje en el mar para descubrir si por ahi estan pasando los peces. Un alambre conecta el micrófono sumerjido (que aumenta considerablemente el volumen de los pequeños sonidos) con un receptor ordinario, con el cual se oye lo que está pasando en la profundidad del mar. Excelentes resultados se han obtenido con este procedimiento en el Mar del Norte para indicar cuando están pasando los cardumes de arenques.

Ya se están construyendo relojes que hablan o dicen las horas en vez de darlas, por medio, de una ingeniosa aplicación del fonógrafo. Se arreglan de modo que hablen en varios tonos, algunos bastante altos para despertar al que más profundamente esté dormido.

La fabricación de ladrillos de vidrio, tanto para edificios como para pavimentar, se ha hecho una reconocida industria europea. Como de costumbre los alemanes han llevado la invención más adelante que nadie. En Hamburgo se han erigido paredes de vidrio donde se requiere la luz, y donde los reglamentos de la policia requieren que las paredes no tengan ventanas y esten á prueba de fuego. Tres casas se dedican á la manufactura de ladrillos de vidrio en el Este de Alemania. Esos ladrillos son translucentes permitiendo la entrada de la luz, pero impidiendo se vea por fuera lo que hay ó sucede dentro.

Se ha inventado un nuevo y mortifero instrumento. Un caballero de Lituania, Theodor Troitz, ha inventado un cañón eléctrico que dispara de 4,000 á 12,000 tiros por minuto. Esa nueva arma tiene un alcance de tres millas, y su potencia destructiva es tal que, si todo lo que se le atribuye es exacto, dejará atrás como juguetes triviales los rifles de retrocarga. Sólo un hombre se requiere para manipular el cañon.

El nuevo tunel Ratcliff-Rotherhithe, que se está excavando actualmente bajo el rio Támesis necesitará cinco años para terminarse. Tendrá 6,883 pies de largo, con un diámetro exterior de 30 piés, lo cual permitirá un camino para carruajes, etc., de 16 piés de anchura, y dos caminos de 4 8½ pulgadas de ancho para pedestres. Cuando se complete habrá tres tuneles bajo el Támesis de Londres.

El vidrio poroso que se fabrica en Francia tiene tan diminutos los poros, que ni el polvo ni las corrientes de aire pueden penetrarlos, y sin embargo, proporcionan una excelente ventilación.

El Hacendado americano es el mas próspero del mundo. ¿Cuál es la causa? El trabajo de mano es muy caro en América y muy escaso. El hacendado americano debe su prosperidad a los fabricantes de instrumentos y máquinas economizadoras de tiempo y trabajo, que les permiten, no sólo cultivar más tierra, sino lograr mayores cosechas y mejores precios por sus frutos a causa de su superior calidad.

Se anuncia que un mecánico de Lancashire, Inglaterra, ha inventado una máquina que cose directamente con dos carreteles de hilo, evitándose asi el tener que devanar las canillas y enhebrar las lanzaderas.—*Chicago Tribune.*

EXPORT IMPLEMENT AGE

NUR FÜR'S AUSLAND BESTIMMT.

Ein unabhängiges Blatt, das ausschliesslich dem Exporthandel in landwirtschaftlichen Maschinen, Pumpen, Windmotoren und sämmtlichen Artikeln der Land- und Milchwirtschaft gewidmet ist.

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Im Firmenverzeichnis für Käufer das im ersten Theil dieses Blattes wiedergegeben ist, werden unsere geehrten Leser die betreffenden Waarenartikel in deutscher Sprache wiedergegeben finden. Es geschieht dies um ihnen die Möglichkeit zu geben, mit unseren Inserenten leichter korrespondiren zu können.

Amerikanische Maschinen aller Art und Sorten führen sich mehr und mehr im Auslande ein. Fabrikanten jedes Herrenlandes gebrauchen heute amerikanische Maschinen und Diejenigen welche es für sich selbst ausfinden wollen, werden zur Ueberzeugung gelangen, dass unsere Maschinen nicht allein gut und zuverlässig arbeiten, sondern dass sie auch bescheiden im Preise sind.

Unsere Inserenten sind sich bewusst wie wichtig prompte Antwort in Erwiederung auswärtiger Anfragen und wie ungemein werthvoll prompte und sorgfältige Aufmerksamkeit ist in der Ausführung und Versendung von Ordres. In unserem heutigem Zeitalter ist "Zeit" immer der erste Faktor der in Betracht kommt, Aufenhalt wird somit nirgends gebilligt, besonders nicht in Verbindung mit auswärtigem Handel.

Amerikanische Fabrikanten landwirthschaftlicher Geräthe erwarten von den auswärtigen Käufern keines Landes dass Waare von ihnen aus sentimentalem Grunde gekauft werde. Es ist uns darum zu thun, dass ausländische Käufer erst auf unsere Waaren aufmerksam gemacht werden und dann sorgfältig ihren Werth prüfen. Waaren bester Qualität zu bescheidenem Preise verkauft sprechen für die grosse Zunahme in der Ausfuhr amerikanischer Geräthe und landwirthschaftlicher Maschinen.

Eine Garnitur landwirthschaftlicher Geräthe kann nicht in eine Tage, oder in einem Jahre, selbst nicht in mehreren Jahren erfunden und perfekt gemacht werden. Wenn auch die amerikanischen Fabriken neu sind und in jeder Weise modern eingerichtet dastehen, sind ihre Erzeugnisse das Resultat jahrelanger Entwickelung und der Verausgabung ungeheurer Geldsummen und legen heute deutlichen Beweis ein von der Geschicklichkeit und Tüchtigkeit unserer Mechaniker und deren Leistungsfähigkeit.

Die Arbeitsfrage in der Landwirthschaft wird in gar sehr vielen Ländern eine höchst wichtige. Dadurch steigt selbstverständlich auch der Werth und die Nachfrage für landwirthschaftliche Maschinen. Ein Studium amerikanischer Maschinen und Geräthe beweist, besonders in den letzten paar Jahren, dass ein Durchschnittspferd in einem Tage mehr und bessere Arbeit mit viel weniger Kraftanwendung als früher zustande bringen kann. Eine Wirthschaft die mit den allerneuesten amerikanischen Maschinen ausgestattet ist, kann in Folge dessen mit einem nur geringen Theil der gewöhnlichen Ausgaben und mit geringster Anwendung menschlicher Arbeit in perfektester Weise die Arbeiten verrichten.
que même les plus grands des hôtels modernes n'oseraient entreprendre?

Der ungeheure Wuchs in der Ausfuhr amerikanischer Geräthe kann nur durch die Hervorragenheit der Waare und der Billigkeit derselben erklärt werden. Fabrikanten anderer Länder haben sich stets ungeheuerer Vortheile durch die engen kommerziellen Beziehungen mit den auswärtigen Märkten zu erfreuen gehabt, wohingegen der Exporthandel in landwirthschaftlichen Maschinen und Geräthen bis vor Kurzem sich allein auf das direkte Verlangen nach den hervorragenden amerikanischen Geräthen und Maschinen im Auslande zu beziehen hatte. Doch heute sind die bedeutendsten Fabrikanten dieser Waarenlinie in regstem Verkehr mit den auswärtigen Märkten und den Details und anderweitigen Geschäftsanforderungen des Exporthandels moderner Konkurrenz in jeder Weise gewachsen. Unsere geschätzten Leser werden deshalb es vortheilhaft finden, sich mit den Inserenten des *"Export Implement Age"* in flotter geschäftlicher Verbindung zu setzen.

Wird Stahl schwach?

Ein interessantes Problem, das oft bereits besprochen wurde, besteht in der Frage ob Eisen oder Stahl im Laufe der Zeit "geschwächt" werden und in ihren Eigenschaften einbüssen? Nach Ansicht des Herrn R. A. Hadfield, sagt das Blatt "Engineering," geschieht es wohl nicht, wenn das Material in seinem Urzustande richtig zubereitet ist. Sogenannte Mängel dieser Art sind gewöhnlich darin zu finden, indem der Stahl entweder einen innern Riss hat der erst durch Prüfung seiner mikroskopischen Struktur entdeckt werden kann, oder dass derselbe beim Versand nicht in der besten Beschaffenheit war. Die sogennanten mysteriösen Mängel sind jedoch meistens auf die Wärmebehandlung zurückzuführen und leicht wahrnehmbar, wenn richtig untersucht. Ein Techniker schrieb über diesen Punkt jüngst, dass er nach langjähriger Erfahrung gefunden habe, dass Stahl in keiner Weise geschwächt werde—das heisst, unter normaler Arbeitsleistung; "einmal gut—immer gut" ist sein Maxim. Mehrere Probiranstellungen machte der Erfinder aus Versuchsstücken, welche eine Reihe von Jahren im Gebrauche waren; sie erwiesen sich theilweise erfolgreich, theilweise auch ohne Erfolg; er fand aber keinen Unterschied oder Zusammenbruch in den mechanischen Qualitäten. Vielleicht ist auch diese Konklusion eine richtige. Auch im Arsenal zu Watertown, die offizielle Probir-Anstalt der Vereinigten Staaten Regierung, wurden interessante Versuche mit Eisen angestellt. Die Probirstücke wurde vor dreiundzwanzig Jahren äusserst schwieriger mechanischer Behandlung unterworfen, d. h. sie wurden bis zur äussersten elastischen Gewalt gepresst und dann beiseite gelegt. In der Qualität konnte keine Veränderung wahrgenommen werden. Das Charakteristikum der früheren überanstrengten Beschaffenheit, die solange zuvor seien, die Stadt New York eine Bevölkerung wurde, blieb noch immer zurück.

Wir lenken die Aufmerksamkeit unserer geschätzten Leser auf die Annonce der Gesellschaft auf der zweiten Umschlagseite dieser Ausgabe, die nicht allein besonders moderne Ideen auf dem Gebiete der Reklame bekundet, aber auch etwas über die Pumpenfabrikation zu sagen hat.

Alle Diejenigen die sich für diesen Artikel interessiren, solltes es nicht unterlassen, sich sofort mit der auswärtigen Abtheilung der Gesellschaft in Verbindung zu setzen.

INTENTIONAL SECOND EXPOSURE

Das amerikanische Automobil

Amerikanische Automobils steigen bei ausländischen Kaufern in gar schneller Gunst. Amerikanische Maschinen werden heute in jedem Theile des Erdballes gefunden, und der Gebrauch des kommerziellen Automobils ist im steten Wachsen und beständiger Zunahme. In einer jüngst erschienenen Ausgabe der "Modern Methods," eine amerikanische Zeitschrift, liegt ein interessantes Interview mit Herrn William E. Metzger vor, Präsident der "Drei-Staaten Automobil Vereinigung," worin Herr Metzger einige hochinteressante Seiten hinsichtlich der amerikanischen Automobil Industrie anführt:

"Das Automobil," sagte er, "ist hier und wird auch eine bleibende Dauer haben. Es braucht darüber kein Zweifel zu verlauten. Sein Experiment-Stadium ist vorüber und die Automobil Fabrikation wird heute auf einer konservativen geschäftlichen Basis gestellt und dies allein schon sichert ja Dauerhaftigkeit zu. Wir hören viel über die Entwickelung der Automobil-Geschichte reden und dieselbe mit der des Zweirads vergleichen; ja, heisst es, wie jenes wird auch dieses schnell aussterben, so bald die Neuheit der Mode vorüber ist. Doch das ist ein Irrthum. Es giebt nicht fünf Leute in fünf Tausend die je ein Automobil besessen haben und es nicht weiter besitzen möchten, wenn ihre Mittel es ihnen nur gestatten.

"Die sogenannte Schwärmerei oder Liebhaberei ist das Heil des Automobil-Geschäftes. Wäre es nicht um den Enthusiasmus der Reichen, das besser unter dem Namen "Sport Blut" bekannt ist, der rauhe Anfang würde sich nie zu solcher Blüthe entwickelt haben wie heute, wo die Maschine bereits eine ungeträumte Perfektion erreicht hat. Leute die in bequemen Umständen leben, haben durch Fröhnung in ihrem Gesemack für Schnelligkeit und Vergnügen das Kapital hergegeben und der beste Geist des Landes hat sich daran gemacht, um etwas auf dem Gebiete der pferdlosen Fahrzeuge zu beschaffen. Die Reichen ernten heute die Wohlthat ihrer unabsichtlichen Güte; sie erhalten Maschinen die zugleich elegant und dauerhaft sind, deren Aufrechterhaltung jedoch nicht allzuviel kostet. Auch ein anderer Unterschied existirt zwischen dem Zweirad- und dem Automobilgeschäft und ich sollte es besonders wissen, weil ich mit ersterem verbunden war und zwar zur Zeit als jene Industrie ins Leben trat; und die verschiedenheit besteht im Unterschied auf welcher diese beiden Geschäfte basirt sind. Die Produktionskosten. im Zweiradgeschäft, als jenes auf seiner höchsten Blühte stand, betrugen kaum über 25 Prozent des Verkaufspreises Doch dies ist keineswegs der Fall im Automobilgeschäft. Man nehme z. B. irgend eine Fabrik, wie gross sie auch sein mag, und ich wage zu behaupten, dass mit aller Oekonomie und möglichst bester Arbeitsleistungsfähigkeit und Materialien es unmöglich sein wird Maschinen herzustellen, für weniger als fünfzig Proz. ihres Verkaufspreises. Damit meine ich die thatsächliche Zusammenstellung der event. Maschinentheile, ohne die erforderlichen höheren Ausgaben, wie Saläre, u. s. w. in Betracht zu ziehen.

"Um eine grosse Automobilfabrik zu unterhalten erfordert es eine enorme Kapitalauslage. Wir selbst beschäftigen hier 1,400 Leute und in dieser und noch einer anderen grossen Fabrik, die ebenfalls einen Theil unserer Gesellschaft bildet, stellen wir fast alle Theile, ja Alles her, was zu einem Automobil nothwendig ist. Und wenn ich noch hinzufüge, dass wir zweitausend Gasmaschinen auf Lager halten müssen und dass ausserdem eine Maschinenfabrik an unseren Erzeugnissen Tag und Nacht arbeitet um die Aufträge unseres Geschäftes bewerkstelligen zu können, dürfen Sie wohl anerkennen wenn ich behaupte, dass das Automobil für die Dauer geschaffen ist. Vorsichtige Geschäftsleute werden ihr Geld nicht in der Errichtung einer feuersichern Grossfabrik, im Ankauf kostbarer Maschinen, in der Anwendung bester technischer Talente, die überhaupt erhältlich sind, in werthvollen Grundbesitz hineinwagen, es sei denn dass sie nicht allein glauben, sondern thatsächlich sicher sind, dass das Automobilgeschäft ein permanentes bleiben wird. Die Entwickelung des Automobils war der Traum meiner Jugend, und ich gestehe, es hat alle meine denkbarsten Hoffnungen in der Schnelligkeit seiner Neugestaltung übertroffen."

"Was ist Ihre Ansicht über die stete Anstrengung mehr und mehr Kraft zur Anwendung zu bringen? Glauben Sie dass die grossen Wagen ihre Maximum- Entwickelung erlangt haben?"

"Ich glaube fast dass dies der Fall ist. Die grosse Armee der Automobilbesitzer braucht thatsächlich nicht mehr höhere Kraft als es jetzt im gewöhnlichen Touristenwagen vorhanden ist. Der einzige Vortheil der durch höhere Kraft erzielt wird besteht in der Freude, "den Andern" auf einem Hügel vorbeipassiren zu können, und den höchsten Punkt um einige Minuten schneller zu erreichen. "Dieser Andere" aber wird den Hügel schon gut genug erreichen. Auch die Grösse der Wagen denke ich wird sich zu einer bescheidenen Norm allmählig entwickeln, deren Erhaltung nicht eine allzukostspielige sein wird. Die Aufrechterhaltung eines Automobils ist eine heikle Frage, die bei der Maschine gar sehr in Betracht kommt. Je leichter die Kraft, umso schwer erträglicher ist es für die Maschine selbst."

"Und was ist so weit geschehen um das Pneumatic-Problem zu lösen?"

"Sehr viel. Es ist vor Allem von Wichtigkeit ein grösseres Luftkissen zu haben. In Folge dessen sind grosse Pneumatics nothwendig. Es wird gefunden, dass dies ein längeres Vorhalten der Pneumatics zur Folge hat, weniger Abnutzung der Maschine durch Stossen und dass es weit grössere Bequemlichkeit im Fahren verursacht. Es erfordert, allerdings, etwas mehr Gummi und vielleicht auch etwas grössere Kosten beim Ankauf, doch das wird durch das längere Vorhalten der Pneumatics ausgeglichen. Mit der Anhäufung von Maschinen erwachsen grössere Hoffnungen in der Gebrauchsfortdauer des Gasolins. Doch giebt es einen Punkt im Automobilgeschäft der für mich Anziehung hat, und das ist seine kommerzielle Nützlichkeit. Ich meine die Fabrikation von Fahrzeugen zu kommerzielien Zwecken.

"Einst dachte ich dass wir die Sache falsch in Angriff genommen hatten und ich befürwortete die Fabrikation von Fahrzeugen für kommerzielle Zwecke. Doch als ich es vom Standpunkt des Verkäufers betrachtete, erblickte ich darin wunderbare Möglichkeiten. Und diese Möglichkeiten existiren heute noch ebenso wie je zuvor; und eben heute erkenne ich es nur zu wohl an, dass es ein weitsichtiger Schritt war, die Maschinen durch das Vergnügungsende des Handels zu entwickeln. Es ist zweifelhaft ob Geschäftsleute, die das Auge stets auf das Sparen von jedem Cent gerichtet halten, den wiederholten Veränderungen die in der Entwickelung des Automobils nothwendig gemacht wurden, zu tragen willig gewesen wären. Es ist jedoch meine Ansicht, dass die Zeit nahe ist, wo das kommerzielle Fahrzeug seitens grosser Geschäftsfirmen mit besonderer Aufmerksamkeit in Erwägung gezogen, und dass später Maschinen gebaut werden dürften,

die in der Erhaltung billiger als Wagen und Pferde sein werden und sich für die Ablieferung von Waaren für Geschäftshäuser schneller und besser erweisen. Eine Maschine leidet nie von physischer Ermattung und obgleich dieselbe ebenso wie das Pferd fürchterlich abgenutzt werden kann, so ist doch eine einzige Maschine bei verständiger Behandlung jederzeit imstande die Arbeit von fünf Pferden zu verrichten. Man denke nur: Eine einzige Maschine für fünf Pferdefahrzeuge! Die Möglichkeiten in dieser Richtung sind wahrlich unbeschränkt—und dies, wiederum, ist mein anderes Argument das ich aufstelle für die Behauptung, dass das Automobil für die Dauer geschaffen ist, und dass deren Fabrikation eine der stabilsten Industrien in den Vereinigten Staaten bilden werde."

"Und was denken Sie betreffs der Arrangements von Automobil Ausstellungen?"

"Ich glaube eine grossartige Ausstellung sollte für den exklusiven Vortheil des Handels ins Leben gerufen werden. Dann können weitere, lokale Ausstellungen in Detroit, New York und Chicago stattfinden, wie es immer in solchen Sachen Usus war. Ich glaube fast, dass eine nationale oder internationale Ausstellung in 1907 für den Handel ausschliesslich abgehalten werden wird."

"Und glauben Sie, Herr Metzger, dass die amerikanischen Maschinen im Auslande sich besonderer Beliebtheit erfreuen, besonders mit Bezugnahme auf ihre Geschäfts-Distribution?"

"Sie werden täglich beliebter, mehr und mehr. Unser auswärtiger Handel wächst schnell und wir verschiffen Maschinen nach allen Welttheilen. London fängt an ein gar ausgezeichneter Markt für amerikanische Maschinen zu werden—und ich muss wiederum behaupten, dass die in den Vereinigten Staaten fabrizirten Maschinen nach jedem Erdflecken des Erdballes jetzt hintransportirt werden. Die Punkte an der pacifischen Küste sind heute aktive Käufer, und mehr derselben werden nun nach dem Süden verschifft als je zuvor. Dies wiederum muss auch der allgemeinen Prosperität des Landes zugeschrieben werden. Der Süden weist grossartige Verdienste auf und schreitet vorwärts, weiter und immer weiter, in seiner Fabrikation und Landwirthschaft, in einem Stadium unerwartet, ungeträumt. Alles in Allem scheint es mir, dass das Volk der Vereinigten Staaten wahrlich wenig Grund zur Klage hat."

Preise für Erfinder

Die französische Regierung soll einen Preis von 20,000 Francs für die Erfindung eines Mittels für die Denaturalisation des Alkohols ausgesetzt haben, das sich besser als das augenblickliche Mittel bewährend kann. Der Geschmack und der Geruch des denaturalisirten Mittels muss derartig sein, dass das damit verbundene Alkohol zwar untrinkbar gemacht werde, doch darf der Geruch nicht allzuempfindlich sein, um etwa nicht mit dem denaturalisirten Gegenstand und dessen Gebrauch in Konflikt zu gerathen. Lösbare (Gegenstände) Substanzen welche Docht-Unterlagen und Unterlagen in feinen Röhren zurücklassen, werden nicht in dieser Preiskategorie aufgenommen. Die Volatilität des denaturalisirten Mittels muss substantiell dasselbe sein wie das des Alkohols, damit es keineswegs durch theilweise Destillation eliminirt werden kann. Es darf keinerlei Elemente in sich enthalten, welche metallschädlich seien, auch muss es nicht giftig wie Schwefel-Bichloride sein; es muss ziemlich niedrig in Preise sein, um die Anwendung des Alkohols für industrielle und heimische Zwecke nicht zu beeinträchtigen; es darf nicht normal in kommerziellem Alkohol existiren und muss seine Anwesenheit andererseits aber auch im Alkohol leicht ausgefunden werden können.

Ein weiterer Preis von 50,000 Francs wird für die Erfindung einer Methode offerirt für den Gebrauch von Alkohol für Kochzwecke es muss etwa, imselben Masstabe wie Kerosin sein, das heute für denselben Zweck verwendet wird.

Die englische Sprache

Generalkonsul Church Howe, welcher uns aus Antwerpen schreibt, berichtet: "Das Faktum, dass fast die Hälfte des Schiffsverkehrs nach und von Antwerpen unter englischer und amerikanischer Flagge steht, hat Antwerpen zu einem fast englisch sprechenden Hafen gemacht. Die Authoritäten sind sich der Thatsache bewusst, und fördern das Studium der englischen Sprache in allen Gesellschaftsschichten. Freie Abendschulen für den ausschliesslichen Zweck der Erlernung der Sprache sind von den Stadtauthoritäten ins Leben gerufen worden und werden von tausenden Studenten besucht; ausserdem wird ganz besondere Aufmerksamkeit dem Studium der englischen Sprache in allen Branchen der Tagesschulen, sowohl der öffentlichen wie privaten, gezollt. Die Nothwendigkeit eine praktische Kenntnis des Englischen zu erlangen ist so allgemein und wird allgemein so gefühlt, dass sogar private Anregung dieses Bemühen der Unterrichtsbehörden befürwortet hat und Clubs, aus Buchhaltern und Angestellten von Handelshäusern, Banken u. s. w. zusammengesetzt, sich unter dem Namen "Mutual English Teaching Clubs" (Gegenseitige englische Lehrvereinigung) gebildet haben, deren guter Einfluss schnell und weit um sich greift. Die Mitglieder dieser Lehrcirkel zeigen in ihrem Bemühen diese kommerzielle Weltsprache tüchtig und eifrig zu erlernen ungeheuere Energie und Ausdauer.

"Doch dieses Bemühen die englische Sprache beliebt und populär zu machen beschränkt sich nicht allein auf Belgien, sondern dehnt sich sogar bis nach Deutschland hinaus, wo nach den jüngst ergangenen Befehlen die Regierung es gesetzlich vorschreibt, dass alle Eisenbahnbeamten und Angestellten, die englische Sprache lernen und sprechen müssen. Lehrschulen für diesen Zweck sind bereits in München und Nürnberg von der deutschen Regierung eröffnet worden. Es kann nicht in Abrede gestellt werden, dass die englische Sprache die internationale Umgangsprache für Handel und Gewerbe des westlichen Europas schnell zu werden anfängt.

"Die Kanadische Fabrikanten-Vereinigung hat eine Bittschrift an die Kanadische Regierung ergehen lassen behufs Widerrufung der von Professor McLennan anberaumten Vorträge und ersuchte die Regierung über eine neue Einführung des Mass- und Gewichtsystems Beschluss zu fassen, bis auch Grossbritanien und die Vereinigten Staaten etwas in dieser Angelengenheit gethan haben. Auch hat gen. Körperschaft anempfohlen, dass die Handelskammer des Reiches bei ihrer diesjährigen Sitzung um Einberfung einer kaiserlichen Komission nachkomme, der es anheimgestellt werden solle, Einsicht in das gegenwärtige Gewicht- und Massystem zu berichten, das annehmbar sein dürfte. Die kanadische Fabrikanten-Vereinigung zähle fast 2,500 Mitglieder der hervorragendsten Fabrikanten dieses Landes zwischen Halifax und Viktoria und aus diesem Grunde nur dachte ich, sei es gerecht, dass das Konsulat der Vereinigten Staaten darthun solle, dass Diejenigen die direkt durch einen Wechsel des Massystems in Mitleidenschaft gezogen werden, einer sofortigen Veränderung desselben zuwider sind."

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With the settlement of our great plains States there arose a need of some cheap and reliable device for supplying water for the stock. In the East, farm buildings had been located where running water could be obtained, but in the Western country there were vast fertile tracks where no surface water was obtainable. The water must be pumped sometimes from very deep wells. This meant much hard work, and it was a serious obstacle in the way of caring for large herds of cattle.

But the need of it did not exist long before the American genius came to the rescue. The need in Holland had been for a mill to pump large quantities of water from the surface of the land so that it could be tilled. The mill invented for that purpose was therefore naturally large and cumbersome. In Illinois the need was for a windmill large enough to operate the ordinary handpump. To meet this demand there was developed a small wheel, 12 to 15 feet in diameter, filled with narrow, wooden slats, and with a vane to hold it in the wind. The first efforts in this direction resulted in crude devices, but the new style of windmill was efficient enough to suggest great possibilities, and the inventors of the plains began to bestir themselves.

One of the first difficulties that appeared in the new wheel was the fact that if slats enough were used to make it efficient in ordinary winds, it would run so fast in high winds as to tear the pump to pieces. It was not until about forty years ago that this style of wind wheel was made practical and safe by the use of devices for regulating the speed of the wheel. Among the first contrivances for this purpose was a small side vane directly back of the wheel and parallel with it. The main vane was pivoted and the wheel was held in its normal position by springs or weights connected with the vane. When the wind became so strong as to run the wheel at a high rate of speed the pressure of the wind on the side vane turned the wheel partly out of the wind, thereby reducing the surface exposed to the wind.

Another method of governing the speed of the wheel was secured by arranging the slats in several sections which were pivoted and so controlled as to present more or less surface, according to the velocity of the wind. These two methods continued to be the ones in general use until the advent of the steel windmill.

But before taking up the development of the steel wheel, some further account should be given of the conditions existing previous to that time. As the fertile prairies of the great Western empire were populated by thrifty and progressive farmers and stockmen, the demand for windmills increased at a rapid rate. During the period from 1860 to 1890 a vast number of patents were issued for windmill devices. Some of them showed ingenuity and skill, but most of them were visionary ideas of inexperienced men, and never served any other purpose than to separate the inventor from the money which he invested in patent costs and attorneys' fees.

In the early days of the growing industry, most of the windmills were made in small local shops, which supplied the demand in the immediate vicinity. The product of these shops might be so crude as to be almost useless, but nothing better was known to the prospective purchaser and he accepted it as being better than none. If it pumped water for him a part of the time that was better than pumping by hand all of the time.

As railroad facilities improved, and as advertising added its influence, the windmills which possessed the most merit came to be widely known. A few makers, more skillful and enterprising than their fellows, began to build up great industries. Sales were easily made at high prices, and the profits of a well managed concern were large.

Up to this time, however, the business had been founded on skill and genius. No practical and exhaustive scientific researches had been made in an effort to develop the best that could be made. It is true that about 1720 Coulomb, and in 1755 Smeaton, went into the subject of the power and efficiency of the wind wheel in a scientific manner, but their methods and appliances were not the best, and the deductions which they made were of little practical value.

It was not until Thomas O. Perry, an American engineer, began his experiments in 1882 that any thorough scientific effort was made to solve the intricate problems involved in successful windmill building. At that time he was connected with one of the large windmill companies, and his experience and observation had led him to believe that the power of the best windmill then known could be largely increased. His convictions soon paved the way to action. He carefully made his plan for a long series of careful and exhaustive scientific experiments.

It was apparent that reliable tests could not be conducted for his purpose in the open air where the wind currents were so variable. He therefore secured a large room which was emptied of everything except the devices needed for conducting the investigations. Here he erected a vertical axis from which extended a long horizontal arm. After the wind wheel to be tested had been attached to the outer end of this, the arm was revolved by power from a large Corliss Engine, thus securing an absolutely even and easily measured wind current. To record the velocity of the wind, the speed of the wind wheel and other important data the best scientific devices were employed. Every precaution was exercised to secure perfect accuracy. To guard against any possible variation in the wind currents, doors or windows were not allowed to be opened during the progress of a test.

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With the settlement of our great prairie States there arose a need of some cheap and reliable device for supplying water for the stock. In the East, farm buildings had been located where running water could be obtained, but in the Western country there were vast fertile tracks where no surface water was obtainable. The water must be pumped sometimes from very deep wells. This meant much hard work, and it was a serious obstacle in the way of caring for large herds of cattle.

But the need of it did not exist long before the American genius came to the rescue. The need in Holland had been for a mill to pump large quantities of water from the surface of the land so that it could be tilled. The mill invented for that purpose was therefore naturally large and cumbersone. In Illinois the need was for a windmill large enough to operate the ordinary handpump. To meet this demand there was developed a small wheel, 12 to 15 feet in diameter, filled with narrow, wooden slats, and with a vane to hold it in the wind. The first efforts in this direction resulted in crude devices, but the new style of windmill was efficient enough to suggest great possibilities, and the inventors of the plains began to bestir themselves.

One of the first difficulties that appeared in the new wheel was the fact that if slats enough were used to make it efficient in ordinary winds, it would run so fast in high winds as to tear the pump to pieces. It was not until about forty years ago that this style of wind wheel was made practical and safe by the use of devices for regulating the speed of the wheel. Among the first contrivances for this purpose was a small side vane directly back of the wheel and parallel with it. The main vane was pivoted and the wheel was held in its normal position by springs or weights connected with the vane. When the wind became so strong as to run the wheel at a high rate of speed the pressure of the wind on the side vane turned the wheel partly out of the wind, thereby reducing the surface exposed to the wind.

Another method of governing the speed of the wheel was secured by arranging the slats in several sections which were pivoted and so controlled as to present more or less surface, according to the velocity of the wind. These two methods continued to be the ones in general use until the advent of the steel windmill.

But before taking up the development of the steel wheel, some further account should be given of the conditions existing previous to that time. As the fertile prairies of the great Western empire were populated by thrifty and progressive farmers and stockmen, the demand for windmills increased at a rapid rate. During the period from 1800 to 1890 a vast number of patents were issued for windmill devices. Some of them showed ingenuity and skill, but most of them were visionary ideas of inexperienced men, and never served any other purpose than to separate the inventor from the money which he invested in patent costs and attorneys' fees.

In the early days of the growing industry, most of the windmills were made in small local shops, which supplied the demand in the immediate vicinity. The product of these shops might be so crude as to be almost useless, but nothing better was known to the prospective purchaser and he accepted it as being better than none. If it pumped water for him a part of the time that was better than pumping by hand all of the time.

As railroad facilities improved, and as advertising added its influence, the windmills which possessed the most merit came to be widely known. A few makers, more skillful and enterprising than their fellows, began to build up great industries. Sales were easily made at high prices, and the profits of a well-managed concern were large.

Up to this time, however, the business had been founded on skill and genius. No practical and exhaustive scientific researches had been made in an effort to develop the best that could be made. It is true that about 1720 Coulomb, and in 1755 Smeaton, went into the subject of the power and efficiency of the wind wheel in a scientific manner, but their methods and appliances were not the best, and the deductions which they made were of little practical value.

It was not until Thomas O. Perry, an American engineer, began his experiments in 1882 that any thorough scientific effort was made to solve the intricate problems involved in successful windmill building. At that time he was connected with one of the large windmill companies, and his experience and observation had led him to believe that the power of the best windmill then known could be largely increased. His convictions soon paved the way to action. He carefully made his plan for a long series of careful and exhaustive scientific experiments.

It was apparent that reliable tests could not be conducted for his purpose in the open air where the wind currents were so variable. He therefore secured a large room which was emptied of everything except the devices needed for conducting the investigations. Here he erected a vertical axis from which extended a long horizontal arm. After the wind wheel to be tested had been attached to the outer end of this, the arm was revolved by power from a large Corliss Engine, thus securing an absolutely even and easily measured wind current. To record the velocity of the wind, the speed of the wind wheel and other important data the best scientific devices were employed. Every precaution was exercised to secure perfect accuracy. To guard against any possible variation in the wind currents, doors or windows were not allowed to be opened during the progress of a test.

By these careful methods sixty-five different forms of wind wheels were tested in over five

INTENTIONAL SECOND EXPOSURE

thousand individual experiments. Every conceivable form of wheel was built and tested. Some had wide sails or slats; some had narrow. Some had flat sails, others different degrees of curvature. Every angle of exposure to the wind was tested. Nothing was left to be decided by opinion, theory or guesswork. Every feature was carefully and finally decided by test. It required time and patience, but the results secured were of inestimable value.

MUD CANYON, YELLOWSTONE PARK.

This canyon is one of the most majestic in magnitude, depth and height. It looks like a rent in the mountains, made by nature, to interrupt the monotony of solemn grandeur all around.

The conclusion of these experiments showed that the power of the best windmill then known could be doubled. This was accomplished by making a wheel which would run and do useful work in the lightest breezes and still be fully under control in the strongest winds. To write the details of how this was accomplished is very easy after a lapse of twenty years, but those of us who are enjoying the fruits of all this labor should not forget that it required unusual skill and genius to successfully work out all of the problems involved. To those who are particularly interested in this subject a detailed account of the progress of these investigations would be most interesting, but it seems proper to describe here only the most important conclusions, without going into particulars as to how they were reached. Those who wish to pursue the subject further may do so by referring to "Water Supply and Irrigation Papers, No. 20," published by the United States Government, Department of the Interior, where a full report of Mr. Perry's experiments will be found.

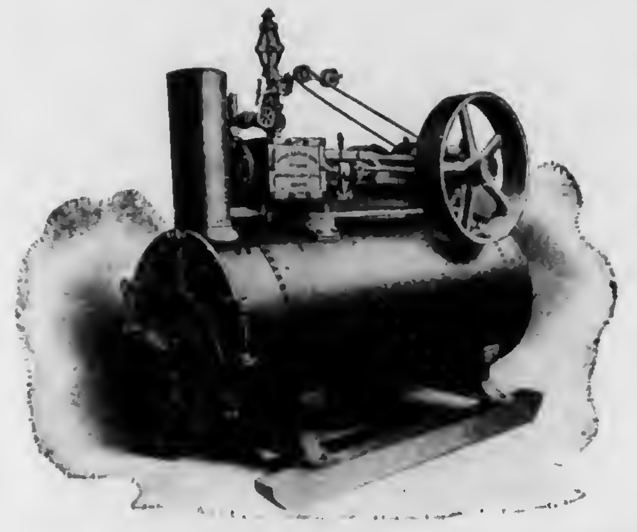
The most important thing accomplished by these elaborate tests was the fixing for all time the form of the wheel. It was found that the wheel, to be most effective, must have sails of good width; that they must be curved to exactly the right shape, with the concaved side toward the wind; that they must be very thin and set at just the right angle to the wind. The edge of the wooden slats which were being used in all wind wheels, presented so much surface against the wind as to seriously retard the movement of the wheel. Mr. Perry therefore decided to use sheet steel for his new wheel. The idea was laughed at by every one at first, but he had the record of his experiments to prove that he was right and he kept on. How well this work was done is shown by the fact that at this time, after the lapse of twenty years, the most powerful and successful windmills are the ones which follow most closely the exact form of wind wheel designed by Mr. Perry.

Up to this time no windmills had ever been built with a wheel less than 10 feet in diameter, and most of them were 12 feet or more. When the steel wheel was perfected, it was found that an 8-foot wheel was plenty large enough for ordinary pumping purposes. The speed of the wheel was so great and it ran in such light winds that it developed a surprising amount of power. In fact the speed of the wheel was so great that it at once became evident that it would be necessary to provide some means for reducing the number of strokes of the pump.

This led to the idea of gearing back. To accomplish this a small pinion was placed on the other end of the shaft which carried the wind wheel, and below this a large wheel about three times larger in circumference. It was found that this method possessed several advantages of much importance. The wind wheel was given such a leverage on the pump that it could start up and run in winds so light as to have no effect on the wheel which was directly connected to the pump. The proportion of back-gearing could be made just right to give the proper piston speed for the pump. This proportion was determined at the outset to be 3 1-3 to 1, and it has never been improved upon. The gearing also provided a long, easy stroke for the pump in place of the short, quick and jerky stroke which was so destructive to both mill and pump in high winds. Besides this, the work of the windmill was now well divided between four bearings and two shafts. The old direct stroke mill carried the load of the heavy wind wheel at one end of a shaft on one bearing, and the load of the pump on the other end of another bearing. By the new arrangement this shaft carried only the light steel wheel and the pinion, while the load of the pump was thrown upon the slowly-revolving shaft of the large gear.

And so, by the proper working out of these two new ideas, the steel wheel to utilize the full power of the wind, and the back-gearing to transmit it to the pump, the foundation for the steel windmill business was laid. In giving an account of this period of development no name but that of Mr. Perry has been mentioned, for there is no other to contest with him the honor of the original investigations. It is permissible to speak thus freely of him and of his work, since he is no longer engaged in, or interested in, the windmill business. He retired several years ago to the enjoyment of a beautiful home and a comfortable income as the reward of his earlier labors.

While it may not be proper to speak as freely of the invention as of the inventor, it hardly seems just to him to pass on without some brief reference to the wonderful success of his invention, from the building of the first steel windmill down to the present time. But in doing this it becomes necessary to mention



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another name which is inseparable from the history of the steel windmill business. As to Mr. Perry belongs the honor of conducting the investigations which led to the invention of the steel windmill, so to LaVerne W. Noyes belongs the honor of establishing and developing the business. Mr. Noyes had already won distinction as an inventor in other lines, and as his friend Perry showed to him the results of his work, he was quick to grasp their great value. Mr. Noyes possessed, in a remarkable degree, the qualities of inventive genius, business sagacity and indomitable energy. From the day that he undertook the manufacture of the steel windmill its success was assured. Without him it is doubtful if the steel windmill industry would ever have risen to its present magnitude. It is certain that many more years would have been required for its development.

The first steel windmills were painted, but it was soon discovered that this offered insufficient protection against rust. The plan of galvanizing the completed sections of the wheel was conceived and carried out so successfully as to absolutely and fully overcome the threatened danger from rust.

The wooden windmills had always been erected on wooden towers, and serious falls resulted from the rotting of the ladder or the rusting off of the nails. With the idea of escaping this serious danger, the promoters of the original steel windmill brought out the tilting tower, which quickly gained great popularity. By this means the windmill could be quickly and easily lowered to the ground for oiling or other attention. Convenient and satisfactory as this novel tower was, it was destined to be only the stepping stone to further advances. The fault with it was that it was built of wood, and it was likely to rot out and blow down long before the steel windmill had served one-half of its days of usefulness.

The steel wheel demanded a steel tower and the demand was soon met and satisfied by the remarkable genius who was marking out the paths to advancement in this thriving industry. The first steel towers, like the first steel windmill, were laughed at and ignored by all other manufacturers, but, like the steel windmill, they were a complete success from the start. Soon steel was needed by the train load for their manufacture,

This brings the history of the windmill down to very recent times. At this point, the writer hesitates about going into further details, for fear that he may seem to favor some manufacturers of the present time, or neglect others. Those who desire further knowledge of the windmills of the present day can obtain it readily from the catalogues of leading manufacturers. Or, if they desire unbiased and reliable information as to their power and utility, they will do well to refer to the "Water Supply and Irrigation Papers Nos. 41 and 42," published by the Department of the Interior, where the exhaustive tests of Professor Murphy of the Department are recorded. These tests were made on many different makes of windmills as they were found in actual operation in various parts of the country. The report of Professor King's experiments, as given in Bulletin No. 82, of the Agricultural Experiment Station, of the University of Wisconsin, will also be found interesting. Both of these writers have much to say about the value and efficiency of the power windmill for grinding grain and running a great variety of light machinery. This is one of the most important developments of the steel windmill business, but space prevents more than this brief reference to this branch of the industry.

This article could hardly be considered complete as to the development of the windmill without some short account of the present extent and importance of the business. Go where you will to-day, on the face of the civilized world, and you will find the steel windmill there before you. From the mining camps of Alaska, where it pumps water to wash out the gold, to the very heart of Africa, where it grinds grain for the dusky natives, and so on clear around the globe, the windmill is faithfully doing its work. Windmills to the value of many hundreds of thousands of dollars annually are exported from the United States to South America, South Africa, Australia and other agricultural and grazing countries.

But the United States is the greatest country in the world for windmills. Here the modern windmill was developed to its present high state of perfection, and here it is most used. Vast sums of money are invested in the business, and many great factories are busily engaged in turning out these time-saving and labor-saving devices.

It may be interesting to note, in closing, that the windmill business is one of the few large enterprises which has not yielded to the temptation to organize into a so-called trust. No combination or understanding of any kind exists among the windmill manufacturers of this country. Each company is engaged in manufacturing the best that its facilities, or skill, or inclination permits it to build, and in selling at prices which competition has made extremely low. Where freight rates are not too high, the best steel windmill on a tower of ordinary height can be put up ready to attach to the pump for from $50 to $65. The windmill which costs this small sum is more durable, more serviceable, and more satisfactory in every way than the old wooden mill and tower which cost several times that amount. Under existing conditions, there seems to be no reason why every country dwelling, and every barn and pasture should not be supplied with an abundance of pure fresh water at a cost far below the city water rates.

THE CATHEDRAL, HAVANA.

Columbus was buried in one of the vaults of this edifice. After the Americans took possession his remains were removed to Madrid, Spain. Services are held here daily between 3 and 5 p. m. The Cathedral is held in high reverence by all Cubans and possesses many features of architectural interest and peculiar, yet interesting, interior arrangements.

THE TEMPLETE, HAVANA

This "sacred ground," is believed to be the spot where Christopher Columbus first landed when he set foot on Cuba. Here he offered prayer and planted the Spanish flag, taking possession of the island in the name of Spain.

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REFORM IN BUSINESS HOURS

Some of the newspapers of the Mexican capital have taken up an agitation for a reform in the business hours. Heretofore it has been the custom to absolutely close all shops and offices between the hours of 1 and 2.30 or 3.00 o'clock in the afternoon. Some of the foreign stores have attempted to get away from this system, but the small amount of trade gained by thus doing away with the ancient "siesta" hour (now largely a tradition in the capital), was not enough to pay for the effort and trouble.

The noon rest hour is a reasonable one in the tropics, where it is always a period of dullness and unusual heat; but there is also the other side, in that the long hour suggests a heavy noon meal, which in the tropics, more than anywhere else, is unreasonable. But the principal opposition to the noon rest hour is the consequent lengthening of the working hours into the evening, so that stores and offices never close before 7.00 o'clock, and often not before 8. This throws the evening's recreation into the night, so that no theater can begin a performance before 8.45 at the very earliest, and the time of recreation is lengthened into an "all-night séance."

But the matter of reform is one that must be taken up generally, for individual houses have found that reform in their own business was a good deal of a failure. One house which has a good deal to do with the general public, tried the system of beginning work at 8.00 o'clock instead of 9.00 in the morning, taking only an hour at noon, and closing at 6.00 in the evening. The result, after a fair trial, was a very generally distributed list of clerks who were late in the morning, a noon hour that was most elastic, and the painful necessity of some one's working overtime at night to meet the people, who insisted on coming in droves between the hours of 6 and 7.

A reform in business hours is a most commendable thing for Mexico, for it would give more leisure at night, more opportunity to live in the beautiful suburbs, and, no doubt, would get more business done; but in the present condition of affairs and the customs of long standing, it will be a matter of some difficulty of adjustment. Another reform which has been suggested is the working of the clerks during a few of the myriad church and national holidays, and the allowing of summer vacations, a thing largely unknown here to the employees of large houses.—*Modern Mexico.*

THE DRAGO DOCTRINE

On the eve of the assembling of the Pan-American Congress at Rio Janeiro, American papers have been full of discussion of the "Drago Doctrine" as if it were something new. In fact there is nothing new about the name. It is an old doctrine of international law—the doctrine that sovereignties are sovereign regardless of their military strength—which was impudently assailed by the European powers that sent war ships to collect Egyptian public debts for their citizens. This has furnished a precedent for other ventures of the same marauding character. When public debts of a weak nation are wholly or partly repudiated or territorial concessions are withdrawn, foreign investors now call upon their governments to become constables for the collection of their claims. So common has this innovation grown to be under the pressure of frenzied financiers, that the newspapers, the people themselves, and even the statesmen of the world have tacitly accepted the notion that it is a proper function of government to collect or adjust the claims of their citizens against weak nations. To realize the invalidity of this notion, it is only necessary to recall the fact that in the earlier days of the United States, the State of Pennsylvania repudiated obligations held by foreigners, and that weak though the United States was at that time as a military power, no nation on earth thought for a moment of using force to compel the settlement of Pennsylvania's foreign debt. The "Drago Doctrine" is simply a reassertion of an old and sound doctrine, and it is to be hoped that the Pan-American convention will by adopting it, lead the way onward, putting an end to the novelty of utilizing war ships for the adjustment of financial claims.—*The Public.*

THE END OF STEAM LOCOMOTIVES PREDICTED

W. R. Everett, in the *Interurban Railway Journal*, writes: "The steam locomotive has reached its limit of development. Its driving wheels are of the maximum size, and the stroke cannot be increased. It cannot safely be run longer than 250 miles with a train, and it must eventually take a back seat for the electric-gasoline power. The latter is practically unlimited in development. Gasoline engines are now built of 1,600 horse-power, and it may not be many years before heavy trains are pulled by these engines. The self-contained car, which supplies its own power as it travels, seems to be the ideal car of the future. The idea, now in its infancy, may be expanded in a few years, until long trains are pulled instead of a single car.

"The self-contained car is here to stay. It will be improved and developed from time to time until it displaces the steam and trolley systems. Requiring stops only to provide its supply of gasoline, these cars can run 200 or 300 miles, effecting an enormous saving in locomotives. At present, two engines are required to run between Chicago and St. Louis. The electric-gasoline car will make the run from one great terminal to the other, cutting the number of locomotives used squarely in two, while the saving in the cost of operation will be tremendous.

"The steam railroads of this country, where paralleled by the trolley interurbans, are compelled to meet the competition. They are turning to the self-contained car as their means to the end. If the trolley companies had been wise, they would not have invited this competition and warfare. They should have avoided the right of way of the steam roads and built up new business independent of the steam roads. It would have been a simple matter for them to diverge from steam roads, touch towns not reached by the steam lines, and develop others in favorable localities. By this policy, they would have found co-operation from the steam roads instead of enmity. It is now a war to the death."

NEW TRUNK LINE WITH ELECTRIC LOCOMOTIVES

Announcement has recently been made of one of the greatest railroad projects ever undertaken, which will be under way within a very few weeks. It is nothing less than a new trunk line from New York City to Pittsburgh, and thence to Chicago, at a cost of $150,000,000. Mr. Joseph Ramsey, Jr., the former president of the Wabash Railroad, is at the head of this project.

Surveys for the road have been completed, and show that the line will be sixty-five miles shorter than the Pennsylvania line between Pittsburgh and New York, and 108 miles shorter than the present shortest line between New York and Chicago.

It will not only be the shortest line through Pennsylvania, but it will cross the summit of the Allegheny Mountains 400 feet lower than the Pennsylvania, and will have easy curves and remarkably low grades for a mountain line.

It is proposed to operate the line with electric locomotives, and as the surveys give the new line a maximum grade of twenty feet to the mile in comparison to the maximum grade of sixty-five feet to the mile on the present Pennsylvania system, the locomotives will be able to develop high speed.

Preliminary work will be begun this fall on the line to New York, and actual grading will be begun in the spring. The line west will be started as soon as the Pittsburgh-New York line is completed.

The surveys for the lines West are not final, and the promoters of the road expect to lower the grade further and to shorten the distance before the road is laid out.

The foreign syndicate will build the lines and turn them over completely to the consolidated road, which will be known, it is said, as the New York, Pittsburgh and Chicago Air Line, which will be capitalized at first at $1,000,000.

Mr. Joseph Ramsey, Jr., who is now in New York, sent the following signed statement relative to the new project:

"We expect to make a start this fall and begin work next spring, hoping to complete the line between Pittsburgh and New York within three years. The cost of the line between Pittsburgh and New York is estimated to be between $75,000,000 and $100,000,000, all of which has been pledged, the bulk of it by foreign capitalists. It would not be wise for me to give details or names now.

"The line is not merely a preliminary survey, but a final location that has been revised three times. Three corps have been busy for three years. It is the best possible low-grade line to be secured through Pennsylvania between Pittsburgh and New York.

"The extension of the road west to Chicago from Pittsburgh will be taken up when the line east to New York is completed."

Some of the British shipbuilders declare that cargo steamers can now be purchased for less money than they can be built. Yet during the month of May there were added to the British Registry a total of 99 vessels, aggregating 136,712 tons, chiefly large steel steamers.

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REPRESENTA Á LAS MAS GRANDES Y ANTIGUAS CASAS DE AMÉRICA,

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Un Peso* (*Cuatro Chelines*)** al año es el precio de la subscripción (12 números), y la subscripción os da derecho á recibir informes, si nos escribís directamente, sobre cualquier asunto relacionado con el ramo de negocios que representamos. La ***Export Implement Age es á la verdad digna de que os intereséis por ella y contribuyáis á su sostén.

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Firmad la Planilla en blanco inclusa, y remitid vuestra subscripción en un Giro Postal Internacional á la EXPORT IMPLEMENT AGE, No. 1010 Arch Street, Philadelphia, Pa., U. S. A.

No. 1010 Arch Street, Philadelphia, Pa., U. S. A.

AUTOMOBILE FIGHTING ENGINES FOR RUSSIA

Twelve huge fighting engines of an entirely new type are being built at Puteaux, France, for the Russian government. The machines are armoured automobiles with a Hotchkiss gun projecting formidably from a turret on top of the rear of the body and with portable steel bridges for crossing ditches and small sloughs slung at the sides.

As an early step in the practical adaptation of the motor car to the purposes of warfare these machines are engaging the interest of military experts everywhere. The chassis is of the standard 30 h. p. type with springs and axles specially strengthened. The wheels are covered with sheet steel, have leather covered tires and are interchangeable. Two spare wheels are carried at the rear of the car. By means of a special solution in the air chambers the car can be run for about 15 minutes after the wheels have been riddled with bullets. The driver's and mechanic's seats are in the usual position behind the engine and the engines can be started automatically from the driver's seat.

Completely hidden from view within the vehicle, driver and gunner have a good outlook on the enemy through loop holes in the turret and front of the car, and the gun which fires 500 shots per minute can be trained in any direction. The firing angle varies from 10° to 30° and the effective distance is 2,150 yards. Special steel that offers great resistance to bullets is used for casing the war car. It is painted in khaki and with all passengers on board and full supply of gasoline and oil weighs only 7,040 pounds. Ponderous as the machine is, it is capable of making 30 miles an hour on level roads and an average of 19 miles an hour across country. The facility with which it can be handled, backward, forward, up hills and across ditches, is astonishing. The portable rails or bridges are an important and interesting feature; they can be unshipped and placed readily and with ease. Each car cost $16,000 and Russia has ordered twelve more built during 1907 and the same number in 1908.

The cars were inspected by the French minister of war, M. Etienne, and a body of journalists before being turned over to the Russian authorities, and interesting tests were made in their presence, in all of which the machine was under perfect control.—*Popular Mechanics.*

IMMIGRATION FIGURES

The total number of aliens who passed through the Ellis Island immigrant station in New York during the fiscal year ended June 30, was 935,015, an increase of over 100,000, as compared with 1905. There were 607,000 males and 272,000 females. Including those who reached the island and who were denied admission, over one million aliens arrived at New York.

Out of the total only 38,296 were over 44 years old. Some 100,000 had been in the United States before. Altogether they brought with them $19,000,000. For various causes 7,877 were deported, including 195 criminals, 119 insane, and others because they had various contagious diseases. Italy led with 254,238 to her credit, and Russia followed with 163,316; Hungary sent 128,247; Austria, 96,625; Great Britain and Ireland, 71,000; Germany, 30,808, and the Scandinavian countries 33,000. Of those who arrived in the month of June alone, 45,433 gave their destination as New York, and 15,793 went to Pennsylvania. The greatest number which went to any other State in the month of June was 6,531 to Illinois. New Jersey came next with 5,971.

The efforts made to get immigrants to go South are not successful to any great extent. Only 7 went to Arkansas, 63 to Georgia, 24 to Mississippi, 23 to North Carolina, 23 to South Carolina, 86 to Texas, and so on to the other Southern States. West Virginia, to which 819 immigrants went in June, received a larger number than any other southern State, not including Maryland, which received only 536 of those who landed at New York.

IRON AND STEEL

Iron and steel exportations from the United States have increased tenfold since 1870, fivefold since 1890, and practically one-third since 1900, while for the first eight months of the current year they are practically six times as much as importations of like commodities during the same period. Figures just compiled by the Department of Commerce and Labor show that exports of iron and steel manufactures increased from 9 million dollars in the eight months ending with February, 1870, to 68 millions in the corresponding months of 1904 and 102 millions in the same months of the present year. Imports of iron and steel manufactures decreased meantime from 21 millions in the eight months ending with February, 1870, to 19 millions in the first eight months of the fiscal year, 1904, and 18 millions in the corresponding period of 1906.

Sarah Bernhardt has led perhaps the most strenuous life of any person now before the public. Her stage deaths by self-administered poisons, total about 10,000; she has jumped into the scenic artist's Seine over 7,000 times; she has sent over 5,000 imaginary bullets into her head from a revolver, while about the same number of daggers have been plunged into her emaciated anatomy.

A project is under discussion in Germany for the holding of a World's fair in Berlin in 1912. There is a fair prospect that provision will be made for such an exposition.

STEAM PLOWING

During the last few years the sugar industry of Trinidad has suffered considerably. Being unable to compete with Porto Rico and Cuba and receiving inadequate assistance from the home government, it was feared that the industry would become extinct in the colony. The recent introduction of labor-saving appliances, and particularly the steam plow, has resulted on certain estates in an increase of yield of 50 per cent. with respect to plant canes.

It is no secret that Trinidad's prosperity depends to a great extent on the sugar industry. Cocoa has sprung into and usurped the premier place among the products of the island, but sugar affords employment to far greater numbers than cocoa, and the steadily increasing cane farming industry is positive proof that the extinction of the sugar trade in the island would be a very serious setback indeed to the local economical situation.

From time to time the planters have been urged to make use of the steam plow as applied in the larger states of the north, thereby lessening the cost of production. The future of the industry absolutely depends on the cost being reduced to a minimum, and luckily this has been disclosed by the introduction of the steam plow and other labor-saving appliances wherever practical.

The prevailing sugar prices in England this year have been so low that many of the estates will make no profit. However, with the increased use of the steam plow and more modern machinery, the cost of production will in the future be materially reduced.—*N. Y. Commercial.*

A GREAT BRIDGE

The new railway bridge over the Yellow River in China is one of the largest and most remarkable in the world. It is a mile and seven-eighths in length, and is composed entirely of steel, with no masonry whatever, according to the report of Special Consular Agent Crist. It rests on steel tubes embedded in the river bottom, and supporting a series of arches varying from about 66 to 98 feet in length. Some of the supporting pillars consist of a group of eight steel tubes sunk 55 feet in the river-bed. The problems encountered by the engineers were particularly difficult because the river current changes not only with the season, but even day by day. Sometimes where there is a bed of sand one day 3 feet of water may be found the next day.

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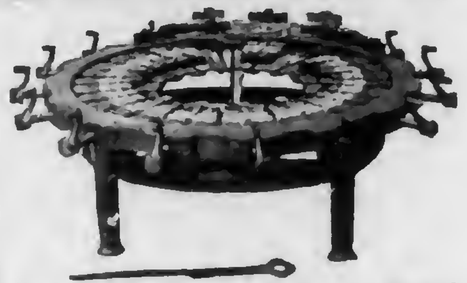

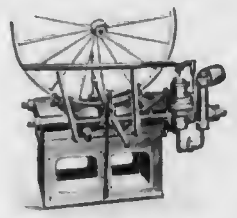

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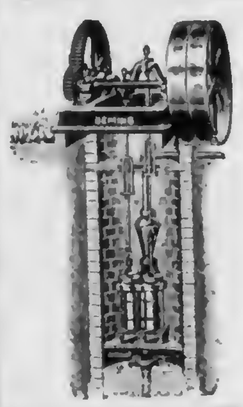

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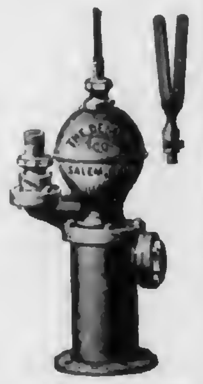

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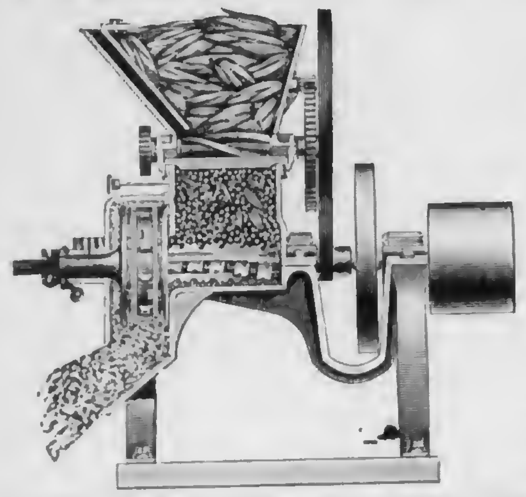

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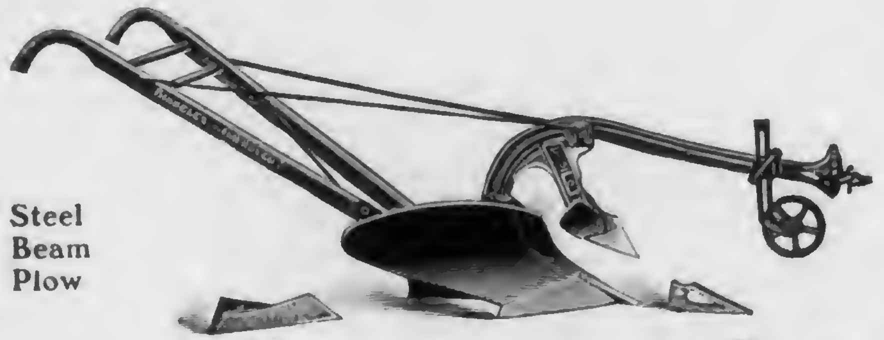

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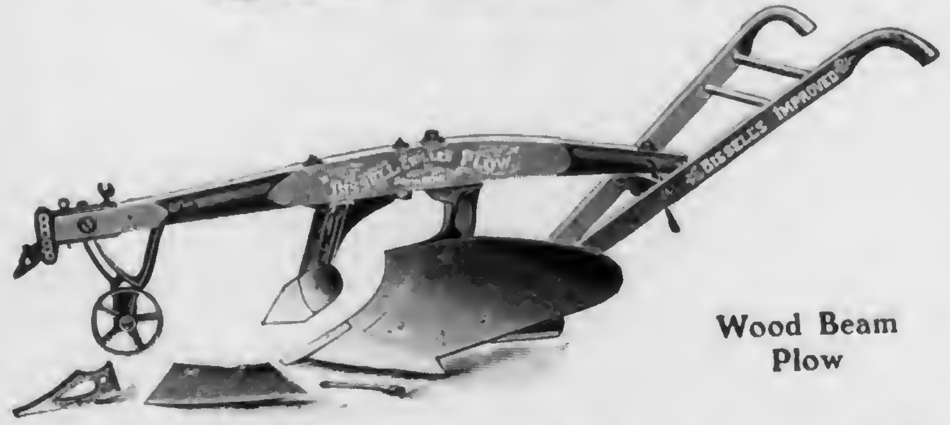

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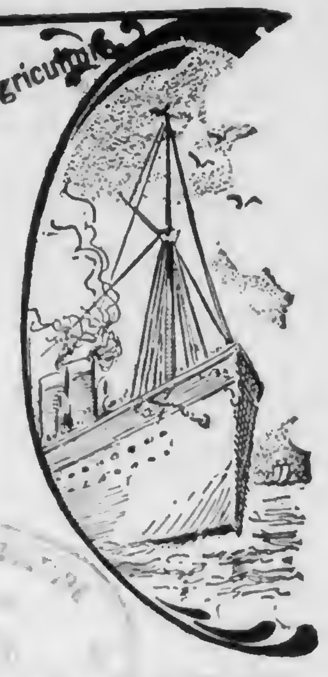

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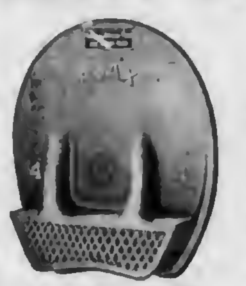

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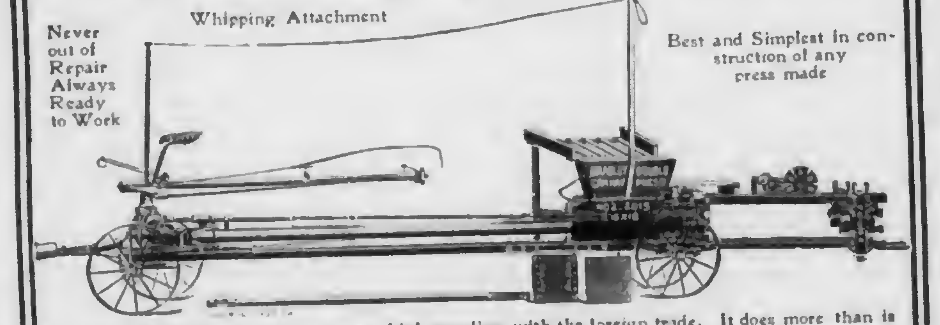

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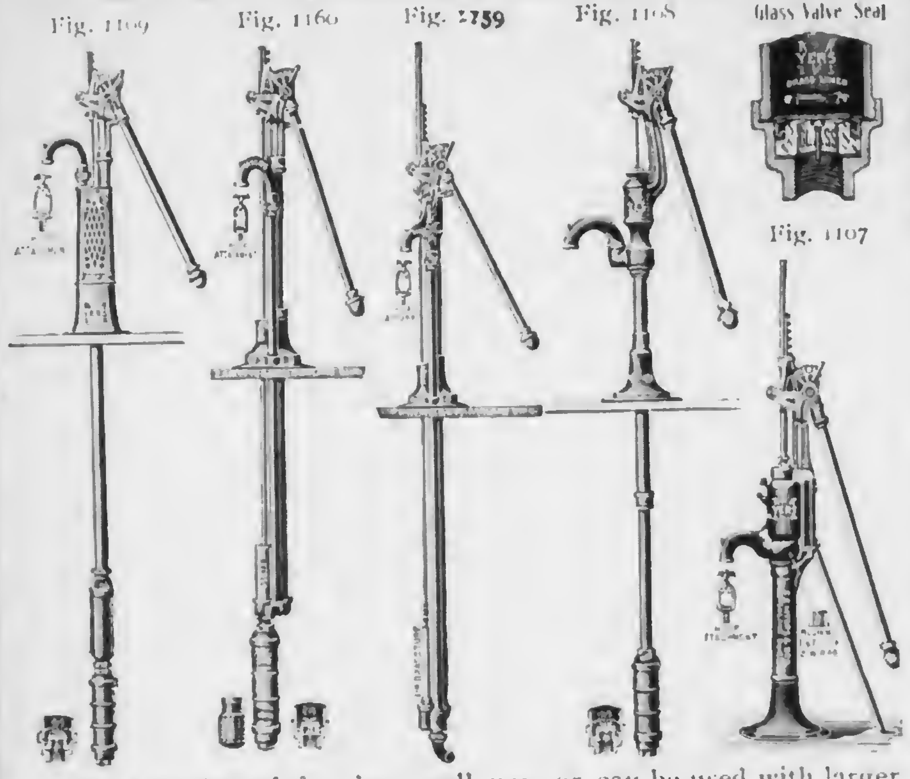

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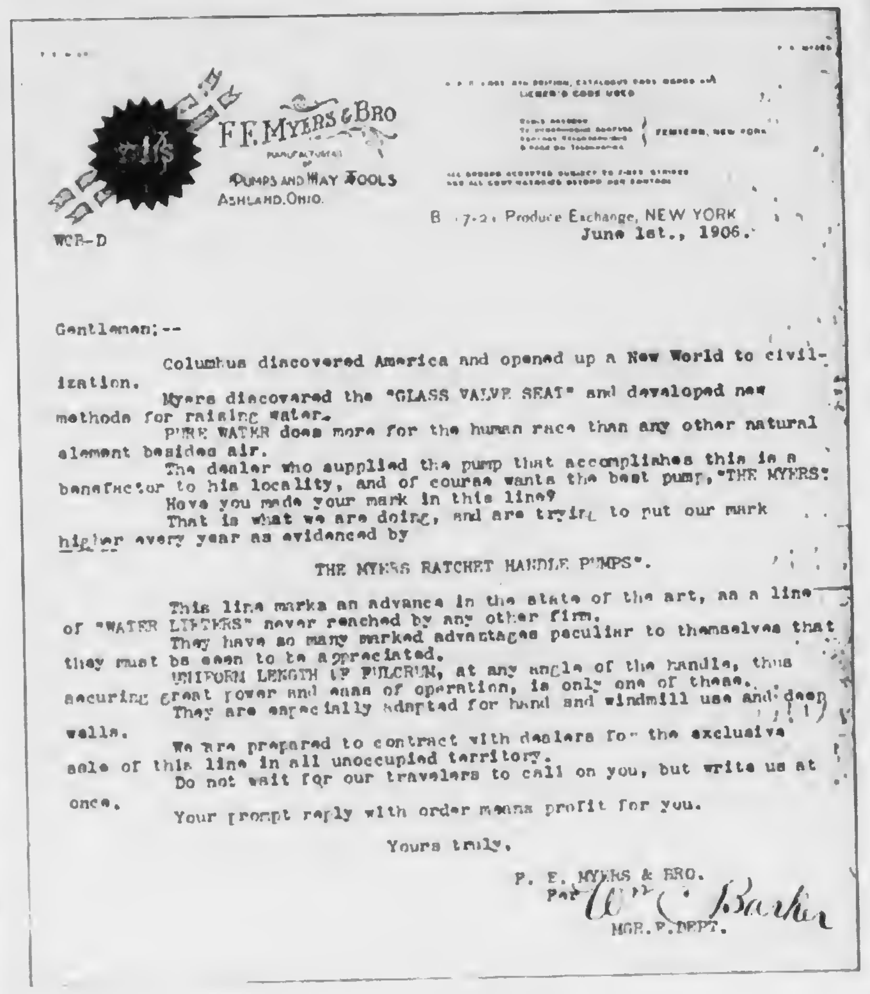

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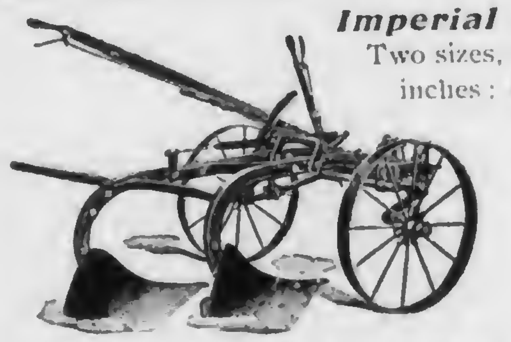

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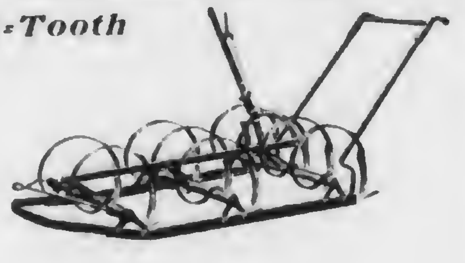

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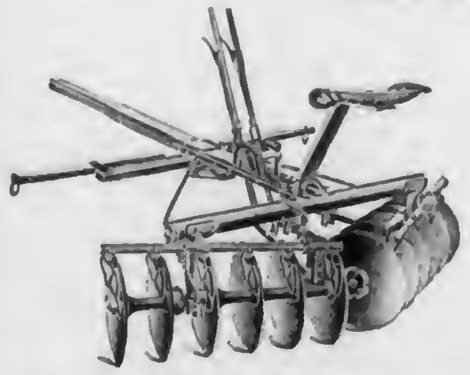

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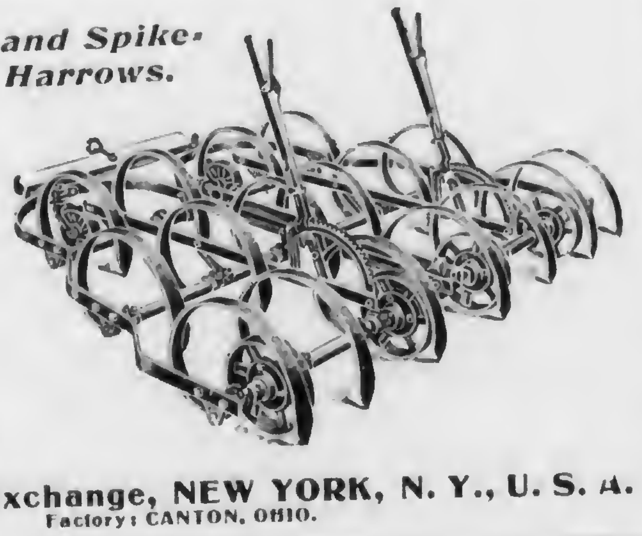

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Ambulances
Carros de hospitál
Krankenwägen (Ambulanzen)

Baling Presses (Hay, Straw, Etc.)
Presses à foin, paille, etc.
Prensas de Embalar (Heno, Paja, etc.)
Ballen Pressen (für Heu, Stroh, u. s. w.)

Bradley Mfg. Co., David, Bradley, Ill. 1
Collins Plow Co., Quincy, Ill. 29
Ertel Co., George, Quincy, Ill. 6

Beet Implements (Planting, Cultivating and Harvesting)
Betteraves (Instruments pour la culture des)
Instrumentos para el Cultivo de la Remolacha (Sembradoras, Cultivadoras y Cosechadoras)
Rübengeräte (zum Pflanzen, Pflügen und Ernten)

Moline Plow Co., Moline, Ill. 6

Binders, Self (Wheat, Rye, Oats, etc.)
Lieuses Automatiques (Blé, Orge, Avoine, etc.)
Agavilladoras Automáticas (Trigo, centeno avena, etc.)
Selbstbindemaschinen (für Weizen, Roggen, Hafer u. s. w.

Boilers.
Chaudières.
Calderas.
Kessel.

Leffel & Co., James, Springfield, Ohio 29

Bolts and Nuts.
Boulons et écrous.
Pernos y Tuercas.
Bolzen und Muttern (Mutterbolzen)

Columbus Bolt Works, Columbus, Ohio 36

Brakes (Vehicle)
Retrancas (Vehículo)
Frein (de Voiture)
Bremsen (für Fahrzeuge)

Potter Co., The Morgan, Fishkill on Hudson, N. Y. . . 3

Carriages
Voitures
Carruajes
Kaleschen und Wagen

Dapson & Wolf, Oneida, N. Y. 3
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Carriage Cloth
Wagentuch
Paño de carruaje
Drap de Voiture

Fairfield Rubber Co., The, Fairfield, Conn. 5

Carriage Materials
Articles pour voitures
Materials for Carriages
Wagenmaterial

Carts (Riding)
Charrettes (à siège)
Carretones (de Montar)
Frachtkarren (Reitkarren)

Dapson & Wolf Oneida, N. Y. 3

Cider and Wine Presses
Pressoirs à vin et à cidre
Prensas para Hacer Cidra y Vino
Kelterapparate für Wein und Apfelwein

Lansing Wheelbarrow Co., Lansing, Mich. . . . . . .

Clothes Washing Machines
Linge (machines à laver le)
Màquinas de Savar Ropa
Wäsche Waschmaschinen

"1900" Washer Co., Binghamton, N. Y. 31

Coal Cars
Charbon (wagons pour)
Carros para Carbón de Piedra
Kohlenwaggons

Lansing Wheelbarrow Co., Lansing, Mich. 29

Coal Shutes
Charbon (Dalles à)
Canales para Descargar Carbón de Piedra
Kohlen Lade-Rinnen

Lansing Wheelbarrow Co., Lansing, Mich. 29

Corn Crushers
Mais (Concasseurs de)
Trituradoras de Maiz
Mais Zerquetschmaschinen

Sprout, Waldron & Co., Muncy, Pa. 8

Corn Harvesters
Mais (Moissonneuses de)
Cosechadoras de Maiz
Mais Erntemaschinen

Standard Harrow Co., Utica, N. Y. 8

Corn Huskers and Shredders
Mais (Instruments à enlever et à déchirer les bractées du)
Desgranadoras y Picadoras de Maiz
Mais Enthülsemaschinen und Auswerfapparate

Bradley Mfg. Co., David, Bradley, Ill. 1

Corn Planters (Hand)
Mais (Semoirs de, à main)
Sembradoras de Maiz (A Mano)
Maispflanzer (für Handbetrieb)

Ohio Cultivator Co., The, Bellevue, Ohio 31

Corn Planters (Horse)
Mais (Semoirs de, à cheval)
Sembradoras de Maiz (para Caballo)
Mais Pflanzmaschinen (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill. . . . .
Moline Plow Co., Moline, Ill. . . . .

Corn Shellers (Hand)
Mais (Egrenoirs de, à main)
Descascaradoras de Maiz (de Mano)
Mais Pflanzmaschinen (für Handbetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Corn Shellers (Power)
Mais (**Egrenoirs de**), á énergie mecanique
Descascaradoras de Maiz (para Fuerza mecánica)
Mais Pflanzmaschinen für Pferdebetrieb)

Marseilles Mfg. Co., Marseilles, Ill.	4
Patch, A. H., Clarksville, Tenn.	5
Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Cotton Planters
Coton (Semoirs de)
Sembradoras de Algodón
Baumwoll Pflanzmaschinen

Ohio Cultivator Co., The, Bellevue, Ohio	36

Cultivating Machinery (Hand and Garden)
Culture du sol (Intruments pour la), á main et pour le jardin
Maquinaria Cultivadora (de Mano y para Huerta)
Garten Pflüge (für Handbetrieb)

Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Cultivating Machinery (Horse and Field)
Culture du sol (Instruments pour la), à cheval et pour le champ
Maqninaria Cultivadora (de Caballo y para el Campo)
Bodenkultur Geräte (für Pferdebetrieb)

Bradley Mfg. Co., David, Bradley, Ill.	1
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Engines and Boilers (Stationary)
Machines à vapeur et Chaudières (fixes)
Máquinas de Vapor y Calderas (**Fijas**)
Maschinen und Kessel (Stationär)

Leffel & Co., James, Springfield, Ohio	29

Engines (Traction and Portable)
Machines à vapeur (Pour la traction et transportables)
Máquinas (De Tracción y Portátiles)
Traktions- oder Zugmaschinen und Lokomobilen

Feed and Ensilage Cutters
Coupe-aliments, coupe-ensilage
Cortadora de Forraje y Ensilaje
Futter- und Grünfutter (Ensilage) Schneidemaschinen

Marseilles Mfg. Co., Marseilles, Ill.	4
Silver Mfg. Co., Salem Ohio	35

Feed Mills
Moulins pour aliments
Molinos de Frorraje ó Pienso
Futtermühlen

Sprout, Waldron & Co., Muncy, Pa.	3

Files (Letter and Card)
Systèmes de classification (lettres et cartes)
Guarda-Cartas y Tarjetas
Skripturenordner (für Briefe und Karter)

Forgings (Carriage)
Pièces forgées (Voiture)
Forjaduras (para carruajes)
Schmiedereien (Kaleschen-)

Gardening Tools (Hand)
Jardinage (**Outils de**) à main
Herramientas de Hortelano (**de Mano**)
Gärtnerei Handwerkzeug

Grain Cleaning Machinery (Rice, Coffee, Grain, Etc.)
Grains (**Machines à nettoyer les**): **riz, café, grain,** etc.
Maquinaria pare Limpiar Granos (Arroz, Café, Granos, Etc.)
Getreide Reinigungsmaschinen (für Reis, Kaffee, Korn, u. s. w.)

Sprout, Waldron & Co., Muncy, Pa.	5

Grain Drills
Grains (**Semoirs de**)
Sembradoras de Granos
Drillmaschinen

Monitor Drill Co., Minneapolis, Minn.	31
Superior Drill Co., Springfield, Ohio	5

Grain Grinding Mills
Grains (**Moulins à moudre les**)
Molinos para Granos
Schrotmühlen

Flint & Walling Mfg. Co., Kendallville, Ind.	3
Kelly Co., The O. S., Springfield, Ohio	36
Marseilles Mfg. Co., Marseilles, Ill.	4
Sprout, Waldron & Co., Muncy, Pa.	3
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Hand Carts (Push)
Charrettes à bras
Carretillas de Mano (de Empuje)
Hand-Schiebekarren

Bradley Mfg. Co., David, Bradley, Ill.	1
Deming Co., The, Salem, Ohio	35
Lansing Wheelbarrow Co., Lansing, Mich.	29

Hand Tools (Shovels, Rakes, Hoes, Scythes, Forks, Etc.)
Outils à main (Pelles, râteaux, houes, faux, fourches, etc.)
Herramientas de Mano (Palas, Rastrillos, Azadones, Guadañas. Horquillas, etc.)
Handwerkzeug (Schaufeln, Rechen, Haken, Sensen, Gabelu, u. s. w.

Harrows (Disc, Spring-Tooth and Spike-Tooth)
Herses (à disques, à dents élastiques, à dents droites)
Mielgas ó Rastrillos (de Disco, con Dientes de Resorte y Otros)
Eggen (mit Scheiben-, Federzahn- und Speichenzahn-Vorrichtung)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Loaders
Foin (**Chargeuses de**)
Cargadoras de Heno
Heu Auflader

Marseilles Mfg. Co., Marseilles, Ill.	4

Hay Presses
Foin (**Presses à**)
Prensas para Heno
Heu Pressen

Bradley Mfg. Co., David, Bradley, Ill.	1
Collins Plow Co., Quincy, Ill.	29
Ertel Co., George, Quincy, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Hay Rakes
Foin (**Râteaux à**)
Rastros para Heno
Heu Rechen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6

Hay Tools (For Handling Hay)
Foin (**Outils** pour la manipulation du)
Herramientas para Heno (para Manipular el Heno)
Heubearbeitungs-Apparate und Werkzeuge

Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Hods (Steel and Wood)
Auges (Acier et bois)
Artesas de Cargar (de Acero y de Madera)
Tünchkübel (Mörteltröge, aus Stahl und Holz)

Lansing Wheelbarrow Co., Lansing, Mich.	29

Implement Parts (Rake, Teeth, Knife Sections, Etc.)
Pièces de rechange (Dents de râteaux, conteaux de faucheuses, etc.)
Partes de Instrumentos (Dientes de Rastrillo, Secciones de Cuchilla, Etc.)
Theile von Landwirthschaftsgeräthen (Rechenzähne, Messertheile, u. s. w.)

Incubators
Conveuses artificielles
Incubadoras
Brutmaschinen (Inkubatoren)

Ertel Co., George, Quincy, Ill.	6

Lawn Mowers
Tondeuses de gazon
Segadoras ó Cortadoras de Césped
Rasen Mähmaschinen

Clipper Lawn Mower Co., Dixon, Ill.	5
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y	1

Leather (Imitation)
Leder (Imitation)
Cuero (Imitación)
Culr (Imitation)

Fairfield Rubber Co., The, Fairfield, Coon.	5

Machine Tools
Machines-outils
Herramientas Mecánicas
Maschinen-Werkzeug

Silver Mfg. Co., Salem, Ohio	35

Mowers.
Faucheuses.
Segadoras.
Mähmaschinen.

Mills (Corn and Hominy)
Moulins (pour maïs et bouilie)
Molinos (para Moler Maiz Fino y Grueso)
Mühlen (für Getreide und indianisches Reis, Hominy)

Sprout, Waldron & Co., Muncy, Pa.	3
Standard Harrow Co., Utica, N. Y.	3

Oil Cloth
Toile Cirée
Wachstuch

Plows (Walking, Riding and Disc)
Charrues (ordinaires, à siège, à disques)
Arados (de Caminar, de Montar y de Disco)
Pflüge (Geh-, Fahr- und Scheibenpflüge)

Bradley Mfg. Co., David, Bradley, Ill.	1
Bucher & Gibbs Plow Co., Canton, Ohio	2
Collins Plow Co., Quincy, Ill.	29
Deere Plow Co., John, Moline, Ill.	31
Moline Plow Co., Moline, Ill.	6
Ohio Cultivator Co., The, Bellevue, Ohio	36
South Bend Chilled Plow Works, South Bend, Ind.	1
Standard Harrow Co., Utica, N. Y.	3

Potato Machinery
Pommes de terre (Machines pour la culture des)
Maquinaria para Patatas
Kartoffel-Maschinen

Bradley Mfg. Co., David, Bradley, Ill.	1
Moline Plow Co., Moline, Ill.	6
Standard Harrow Co., Utica, N. Y.	3

Pumps, Hand and Power (Lift, Force and Spray)
Pompes, à main, et à énergie mécanique (Pompes aspirantes, foulantes, pulvérisatrices)
Bompas de Mano y para Fuerza Mecánica (Aspirantes, de Forzar y de Rociar)
Pumpen, Hand- und Kraftpumpen (Hebe-, Druck- und Besprengungs-Pumpen)

Deming Co., The, Salem, Ohio	35
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
U. S. Wind Engine and Pump Co., Batavia, Ill.	35

Reapers.
Moissonneuses.
Cosechadoras
Getreide-Mähmaschinen.

Rollers (Field or Road)
Rouleaux (pour champs et pour routes)
Rodillos (para Campo y para Caminos)
Feld- und Weg-Walzen

Bradley Mfg. Co., David, Bradley, Ill.	1
Lansing Wheelbarrow Co., Lansing, Mich.	29
Ohio Cultivator Co., The, Bellevue, Ohio	36
Standard Harrow Co., Utica, N. Y.	3

Rubber Goods
Articles de caoutchouc
Articulos de Caucho
Gummiwaaren

Rubber Tires
Gummireifen
Bandes de roues en caoutchouc
Llantas de Caucho para Ruedas

Morgan & Wright, Chicago, Ill.	1

Scrapers (Road)
Ratissoires (pour routes)
Dragas (para Caminos)
Strassen Scharr-Maschinen (Strassen-Ebener)

Standard Harrow Co., Utica, N. Y.	3

Seeders, Broadcast (Grain and Grass)
Semoirs pour semer à la volée (Grain et graminées)
Máquinas de Sembrar Semillas al Vuelo (**Granos** y Semilla de Yerbas)
Breitsämaschinen (für Getreide und **Gras**)

Sharpeners and Grinders
Machines à remoudre et à aiguiser
Afiladoras y Amoladoras
Schärfe- und Schleif-Apparate

Sleighs
Traineaux
Trineos
Schlitten

Dapson & Wolf, Oneida, N. Y.	

Sprayers and Nozzles
Instruments d'arrosage
Rociadoras y Boquereles
Besprengungs-Spritzen und Uebernasen

Deming Co., The, Salem, Ohio	36
Flint & Walling Mfg. Co., Kendallville, Ind.	3
Myers, F. E. & Bro., Ashland, Ohio	2
Standard Harrow Co., Utica, N. Y.	3

Stalk Cutters
Coupe-chaume
Cortadoras de Tallos
Stengel Abschneider

Street Sprinklers
Arrosage des rues (Tonneaux pour l')
Regadoras de Calle
Strassen Bespreng-Wagen

Studebaker Bros. Mfg. Co., South Bend, Ind.	

Sugar Cultivating Implements
Sucre (**Instruments pour la culture de la canne à**)
Instrumentos para el Cultivo Azucarero
Zucker-Anbau Geräthe

Threshing Machinery
Machines à battre
Maquinaria de Trillar
Dresch Maschinen

Tire Setters
Machines à fixer les bandes de roues
Máquinas de Poner Llantas
Maschinen zum Aufsetzen von Gummireifen

Standard Tire Setter Co., Keokuk, Iowa	36

Tread Powers (Horse, Dog, Sheep, Etc.)
Machines à utiliser l'énergie de la marche (Cheval, Chien, Mouton, etc.)
Motores de Pisada (para Caballo, Perro, **Carnero**, etc.)
Kraft-Tretmaschinen (Pferde, Hunde, **Schafe** u. s. w.)

Trucks (Hand Warehouse)
Trucs (Emmagasinage à bras)
Carretillas de Mano para almacén
Transport Handwagen (für Waarenhäuser)

Lansing Wheelbarrow Co. Lansing, Mich.	29

Wagons (Business)
Charettes (d'affaires)
Carros (para negocios)
Wägen (Geschäftswägen)

Wagons and Buck-Wagons
Charrettes et charrettes à lessive
Carretones y Carretas
Wägen und Bockwägen

Ohio Valley Wagon Co., The, Marietta, Ohio . . . . . .

Wagons and Carts (Farm)
Wagonnets et charrettes (Ferme)
Carretones y Carretas (para Hacienda)
Landwirthschaftliche Wagen und Karren

Lansing Wheelbarrow Co., Lansing, Mich. 29
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Weeders
Sarcloirs mécaniques
Desyerbadoras
Jäte Maschinen

Standard Harrow Co., Utica, N. Y. 8

Well Tools and Drilling Machinery
Outils pour puits et machines à forer
Instrumentos para Abrir Pozos y Maquinaria para Horadar
Brunnen-Werkzeug und Bohr-Maschinen

Flint & Walling Mfg. Co., Kendallville, Ind. 3

Wheelbarrows
Brouettes
Carretillas
Schiebekarren

Lansing Wheelbarrow Co., Lansing, Mich. 29

Wheels (Carriage)
Roues (Voiture)
Ruedas (Carruaje)
Räder (Kaleschen und Wagen)

Wheels and Wheel Materials
Roues et articles pour roues
Ruedas y Materiales para Ruedas
Räder und Rädermaterialien

Windmills (Towers and Tanks)
Moulins à vent (Tours et réservoirs)
Molinos de Viento (Torres y Tanques)
Windmühlen (Thurm- und Bütten)

Flint & Walling Mfg. Co., Kendallville, Ind. 3
Marseilles Mfg. Co., Marseilles, Ill. 4
U. S. Wind Engine and Pump Co., Batavia, Ill. 35

Wood Sawing Machinery
Bois (Machines à scierle)
Maquinaria para Aserar Madera
Holzsäge-Maschinen

Marseilles Mfg. Co., Marseilles, Ill. 4
U. S. Wind Engine and Pump Co., Batavia, Ill. 35

Alphabetical List of Advertisers.
Annonces par ordre Alphabétique.
Lista Alfabética de las casas que se Anuncian en esta Revista.
Alphabetisch geordnetes Inhalts-Verzeichnis von Inserenten.

Bradley Mfg. Co., David, Bradley, Ill. 1
Bucher & Gibbs Plow Co., Canton, Ohio 2

Chadbourn & Coldwell Mfg. Co., Newburgh, N. Y. 1
Clipper Lawn Mower Co., Dixon, Ill 5
Collins Plow Co., Quincy, Ill. 29
Columbus Bolt Works, Columbus, Ohio 36

Dapson & Wolf, Oneida, N. Y. 3
Deere Plow Co., John, Moline, Ill. 31
Deming Co., The, Salem, Ohio 35

Ertel Co., Geo., Quincy, Il. 6

Fairfield Rubber Co., The, Fairfield, Conn. 5
Flint & Walling Mfg. Co., Kendallville, Ind. . . 3

Kelly Co., The O. S., Springfield, Ohio 36

Lansing Wheelbarrow Co., Lansing, Mich. 29
Leffel & Co., James, Springfield, Ohio 29

Marseilles Mfg. Co., Marseilles, Ill. 4
Moline Plow Co., Moline, Ill. 6
Monitor Drill Co., Minneapolis, Minn. 31
Morgan & Wright, Chicago, Ill. 1
Myers & Bro., F. E., Ashland, Ohio 2

"1900" Washer Co., Binghamton, N. Y. 31

Ohio Cultivator Co., The, Bellevue, Ohio 36

Patch, A. H., Clarksville, Tenn. 5
Potter Co., Morgan, Fishkill-on-Hudson, N. Y. . 3

Silver Mfg. Co., The, Salem, Ohio 35
South Bend Chilled Plow Co., South Bend, Ind. . 1
Sprout, Waldron & Co., Muncy, Pa. 3
Standard Harrow Co., The, Utica, N. Y. 3
Standard Tire Setter Co., Keokuk, Iowa 3
Studebaker Bros. Mfg. Co., South Bend, Ind. . . . 36
Superior Drill Co., Springfield, Ohio 5

U. S. Wind Engine and Pump Co., Batavia, Ill. . 35

Machinery for Grinding all Kinds of Grain

Machines à moudre tous genres de grains

Maquinaria para moler todas glase de granos

Maschinerie zum Mahlen aller Getreidesorten

Write for one of our booklets which gives a full description of French Burr and Attrition, Feed and Meal Mills, Cotton Seed and Linseed Oil Cake Mills, Emery Rock Mills, Cotton, Ear and Ore Crushers, Magnetic Separators, Corn Shellers, etc.

Ecrivez pour un pamphlet contenant description détaillée de moulins à meules de France et à frottement, de moulins pour grains de cotton et de tourteaux de lin, de moulins à pierre d'émeri, de broyeurs d'épis et de minérais, de moulins magnétiques, d'écosseurs, etc.

Escríbasenos pidiendo uno de nuestros libritos, en que se da una completa descripción de nuestros Molinos de Piedra Francesa y de Roce, para Pienso y para Harina, Molinos de Semillas de Algodón, y para moler Tortas de Aceite de Semillas de Linaza, Molinos para Roca de Esmeril, Trituradoras de Algodón, Mazorcas y Minerales, Separedoras Magnéticas, Desgranadoras de Maiz, etc.

Man verlange eines unserer Büchlein, das volle Beschreibung unserer französischen Mahlsteine und Reibevorrichtung enthält, wie auch aller Futter-Vorrichtungen, Mehl-Mühlen, Baumwollensaamen- und Leinölsaamen Kuchen-Mühlen, Schmirgel-Bergmühlen, Baumwollen-, Aehren- und Erzzerstückelungs-Maschinen, magnetische Separatoren, Korn-Enthülsemaschinen, u. s. w.

SPROUT, WALDRON & CO.

Drawer M. MUNCY, PA., U. S. A.

The Standard Harrow Co.

UTICA, N. Y., U. S. A.

ABERDEEN, SR. SPRING-TOOTH HARROW

Unequalled Strength

No Clogging

Reversible Points on Teeth

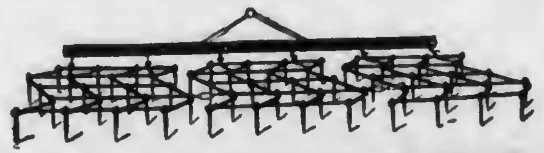
THE STANDARD LINE includes one and two-section Spring-Tooth Harrows and all styles and sizes of Spike-tooth and Disc Harrows, Cultivating Implements, Potato Harvesters, Potato Sprayers, etc., and is one of the most favorably known lines in the leading agricultural countries.

We guarantee prompt service for all export orders. Our factory is only five hours' ride from New York City.

WRITE IN YOUR OWN LANGUAGE FOR CATALOGUE F

ZIG ZAG STEEL SPIKE-TOOTH HARROW

20-Tooth Sections
½-inch Teeth



EASY RIDING

This two-wheeler is our leading specialty for export.

We equip it with RUBBER TIRES, if desired, put on with two wires. The work, like the job itself, is sold under our positive guarantee.

LET US SEND YOU THE PRICES

Dapson & Wolf

ONEIDA, NEW YORK, U. S. A.

WHOLESALE MAKERS OF

FINE CARRIAGES

"POTTER'S"

SPRING BRAKE BLOCKS

Have Led the Market for Nineteen Years, and His

ADJUSTABLE SPRING BRAKE

Is a Winner From the Start

NEW ILLUSTRATED CATALOGUE

The Morgan Potter Co. FISHKILL-ON-HUDSON NEW YORK, U. S. A.

A Windmill that does satisfactory work naturally is the one you want. The "STAR" is the one that pleases. Our booklets in English, German, French and Spanish tell all about

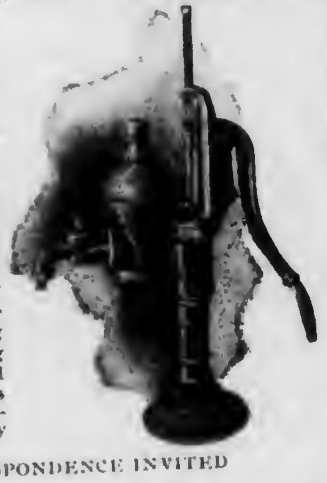
"STAR" WINDMILLS

designed for the heavy and varied work required of them abroad. The "STAR" is built in all sizes, thoroughly galvanized, has ball bearings and is the easiest running Mill made.

For many years we have been exporting Windmills and know what is needed to meet all requirements and please our foreign friends. We understand how these goods should be packed for safe delivery, and the packing receives our most careful attention. With all the required parts at hand and properly fitted it facilitates the assembling and erecting of the Mills.

We build **Hand and Windmill Pumps** of various designs, all sizes of **Pine, Cypress** and **Galvanized Steel Tanks, Galvanized Steel Towers** any height, **Power Windmills** for grinding feed and running light machinery and **Steel Substructures** all heights, to support Tanks of any capacity.

"STAR" PUMPING MILL



CORRESPONDENCE INVITED

FLINT & WALLING MFG. CO. KENDALLVILLE Indiana, U. S. A.

New York Office, 96 Wall Street, New York, U. S. A.

Cable Address, "STAR," Kendallville, Ind. Codes, "Lieber," "A B C, 4th edition," "Western Union" and "Private."

Wagons (Business)
Charettes (d'affaires)
Carros (para negocios)
Wägen (Geschäftswägen)

Wagons and Buck-Wagons
Charrettes et charrettes à lessive
Carretones y Carretas
Wägen und Bockwägen

Ohio Valley Wagon Co., The, Marietta, Ohio . . . . . .

Wagons and Carts (Farm)
Wagonnets et charrettes (Ferme)
Carretones y Carretas (para Hacienda)
Landwirthschaftliche Wagen und Karren

Lansing Wheelbarrow Co., Lansing, Mich. 29
Studebaker Bros. Mfg. Co., South Bend, Ind. 36

Weeders
Sarcloirs mécaniques
Desyerbadoras
Jäte Maschinen

Standard Harrow Co., Utica, N. Y. 3

Well Tools and Drilling Machinery
Outils pour puits et machines à forer
Instrumentos para Abrir Pozos y Maquinaria para Horadar
Brunnen-Werkzeug und Bohr-Maschinen

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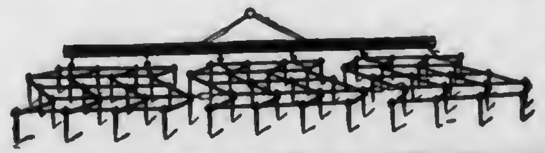

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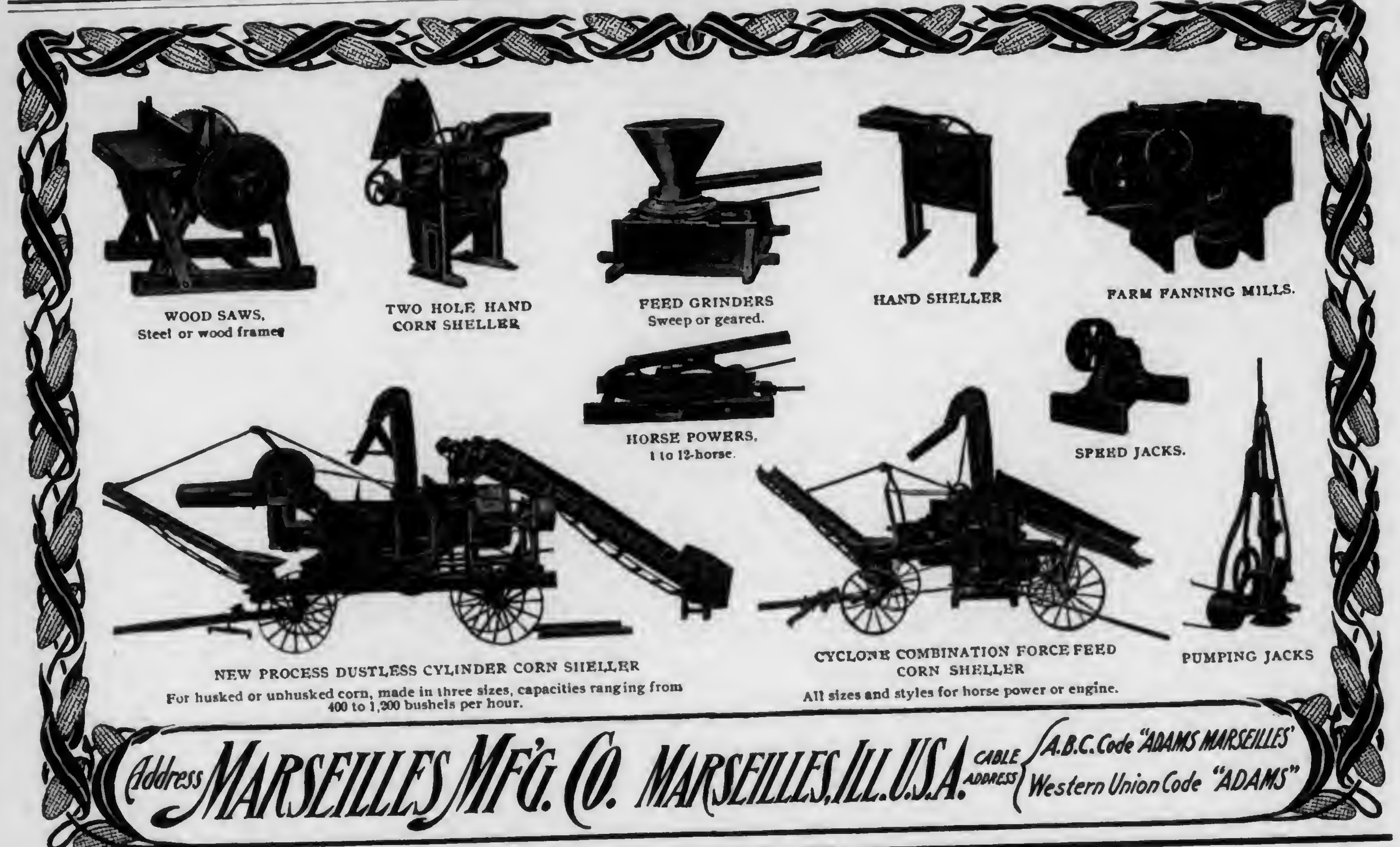

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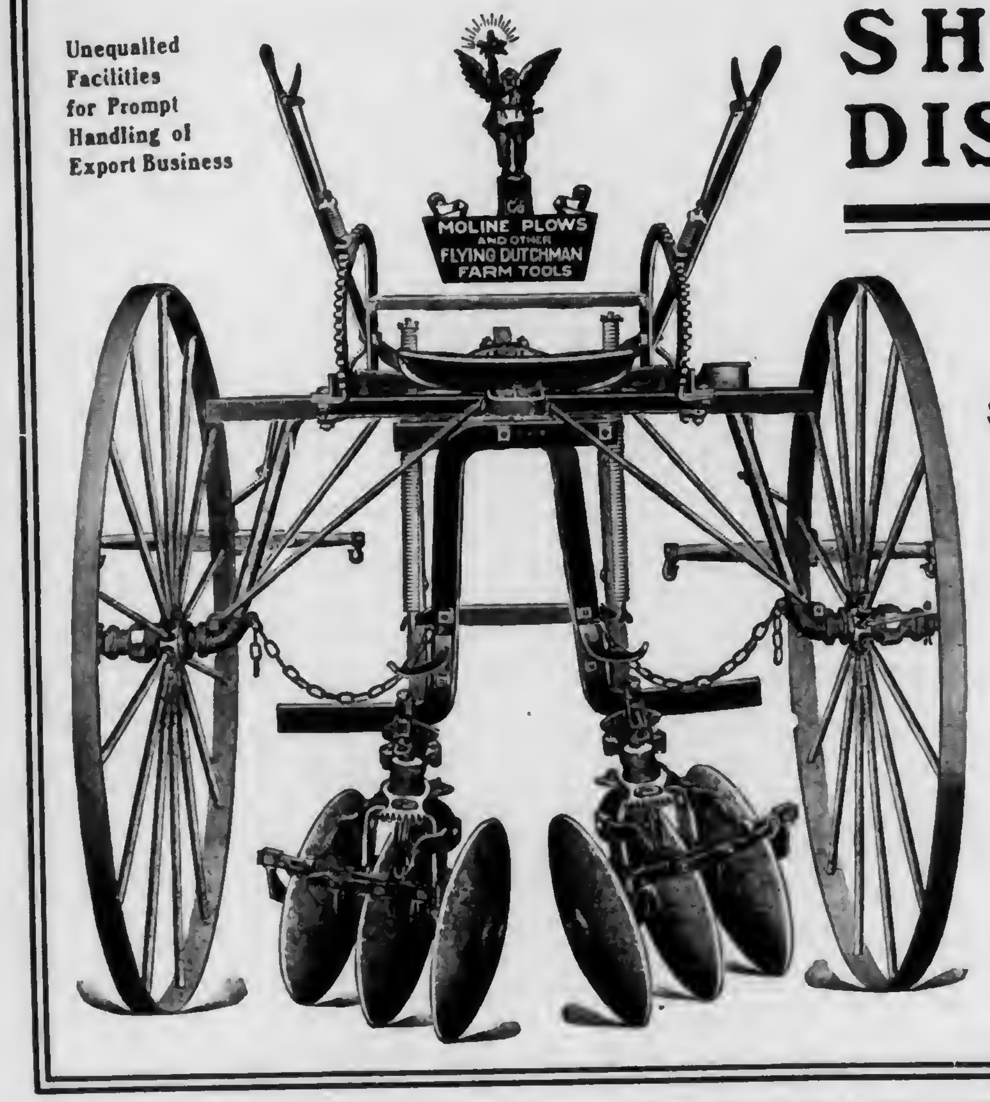

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Our presses will bale from 10 to 18 tons a day in hay.
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Depuis 37 années que nous construisons des presses à foin, à paille, à laine, à coton, à fourrage de maïs, nous avons indubitablement acquis une expérience qui a fait de nous des experts, et nous n'hésitons pas à dire que nos presses sont les plus simples qui soient aujourd'hui sur le marché et celles qui fatiguent le moins l'attelage et fonctionnent le plus aisément.
Nos presses emballottent de 10 à 18 tonnes de foin par jour.
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Despues de 37 años que construimos prensas para heno, paja, lana, algodón y forraje de maíz tenemos que ser expertos en ese ramo, y por lo tanto reclamamos que nuestras prensas son las más simples y las más livianas para el acarreo por parejas de caballos, y las enfardadadoras mejores que existen hoy en el mercado.
Nuestras prensas enfardan de 10 á 18 toneladas de heno por día.
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37 Jahre ununterbrochener Fabrikation von Heupressen, Strohpressen, Wolle- und Baumwollenpressen, wie auch Maisfutter-Pressen, sollte uns wahrlich in den Stand gesetzt haben, Experten dieser Branche geworden zu sein; wir beanspruchen deshalb für unsere Pressen, dass sie die einfachsten in Konstruktion sind, beim Gespann den leichtesten Zug haben und zum Emballiren die vorzüglichsten Dienste leisten. Unsere Pressen sind im Stande 10 bis 18 "Tonnengehalt" Heu und 10 bis 15 "Tonnengehalt" Stroh täglich zu emballiren.

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Our "Gem" Full Circle

We make a line of both Full Circle and Half Circle Presses.
Prices, f. o. b. cars New York City, on our Gem Full Circle Balers, properly crated for export:

	Net Weight.	Gross Weight.	Space	Prices.
[illegible] x 18 Baler	2,650 (1,457 Kilos)	3,700	115 cubic feet	$215.25 (£44.16.10)
[illegible] x 18 Baler	2,775 (1,526 Kilos)	3,800	171 cubic feet	218.00 (£45. 8. 4)
[illegible] x 22 Baler	2,975 (1,636 Kilos)	4,000	120 cubic feet	221.50 (£46. 3. 0)

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Nous fabriquons un assortiment de presses à demi-cercle et à cercle entier.
Prix de nos presses "Gem" à cercle entier, mises en wagon à New York et convenablement emballées pour l'exportation:

	Poids net.	Poids brut.	Espace.	Prix.
Presse 14 x 18	2,650 (1,457 kilos)	3,700	115 pieds cubes	$215.25 (£44.16.10)
Presse 16 x 18	2,775 (1,526 kilos)	3,800	171 pieds cubes	218.00 (£45. 8. 4)
Presse 17 x 22	2,975 (1,636 kilos)	4,000	120 pieds cubes	221.50 (£46. 3. 0)

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Nosotros fabricamos un surtido completo de prensas tanto de medio círculo como de círculo entero. Los precios de embarque de la Prensa "Gem" son franco á bordo de los carros hasta New York, y se empaquetan con seguridad para exportarlas.

	Peso Bruto.	Neto.	Espacio.	Precio.
Prensa 14 x 18	2,650 (1,457 Kilos)	3,700	115 piés cúbicos	$215.25 (£44.16.10)
Prensa 16 x 18	2,775 (1,526 Kilos)	3,800	171 piés cúbicos	218.00 (£45. 8. 4)
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Unsere Voll-Zirkel "Gem" Presse.

Wir fabriziren ein Assortiment von Voll- und Halbzirkel-Pressen.
Preise unserer Vollzirkel Emballage-Pressen, frei Board New York, fertig für den Exportversand verpackt:

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16 x 18 Presse	2,775 (1,526 Kilo)	3,800	171 Kubikfuss	218.00 (£45. 8. 4)
17 x 22 Presse	2,975 (1,636 Kilo)	4,000	120 Kubikfuss	221.50 (£46. 3. 0)

GEO. ERTEL CO. - 597 Kentucky Street, Quincy, Ill., U. S. A.

EXPORT IMPLEMENT AGE

Vol. XIV. Philadelphia, Pa., U. S. A., September, 1906. No. 6

Commerce of Twelve Months

Foreign trade of the United States for the fiscal year just ended far surpassed all preceding years, with an aggregate of almost $3,000,000,000 in value. Exports reached the unprecedented sum of $1,743,763,612, against $1,518,561,666 in the previous twelve months, which was the high-water mark up to that time. Total imports also attained a new record at $1,226,615,379, surpassing the preceding maximum by over $100,000,000. Gains in imports have been relatively greater than increases in exports, so that the favorable trade balance of $517,148,233 is smaller than that of five years ago, although greater than in either of the intervening years. On specie account results were adverse, net exports of $21,446,250 silver being more than offset by net imports of $57,653,320 gold, owing to unusual conditions in the money market here which facilitated engagements of the precious metal. On all tangible acounts, the year's favorable foreign trade balance was $480,941,163, which will be needed to meet costs of interest, freight, insurance, tourists' expenses, money sent back by immigrants, etc., and there will be little left with which to meet foreign loans now outstanding through sales of bills in the exchange market. On the other hand, this country has been investing to a greater extent in foreign securities that it did five years ago, so that there is less need for as heavy a balance on merchandise account.

OBISPO STREET, HAVANA.

The principal shopping street. Each afternoon, between the hours of one and three, all vehicles are excluded from this thoroughfare; the merchants retire from their stores for their daily rest. The street is so narrow between curbs that vehicles can go in one direction only. The sidewalks are about 4 feet wide.

Two points are especially instructive in the statistical comparison of foreign trade for the fiscal year—first, the increasing consumption of luxuries from abroad, and, second, the return to large exports of farm staples which had fallen off very materially in the preceding year. Returns are not available for the year in detail, but in eleven months ending May 31 this nation imported works of arts valued at $4,047,766, automobiles $3,880,633, books, music, etc., $5,177,916, bronzes $851,659, laces $31,890,021, china and porcelain $11,703,707, feathers and flowers $6,314,939, furs $19,866,264, jewelry $38,638,943, raw silk $50,714,487, manufactured silk $30,776,087, spirits, wines and malt liquors $17,736,940, and tobacco $23,859,070. That the nation could purchase these luxuries to such an extent during eleven months of the past fiscal year is so gratifying an evidence of financial prosperity that the failure to provide as heavy a favorable trade balance on merchandise account as in 1901 becomes unimportant, except as a factor in the exchange market. If we buy freely our customers abroad will be enabled to purchase on a liberal scale, and national success will be broadened into international prosperity.

Exports of farm staples during the fiscal year were valued at $890,578,504, exceeding the previous high-water mark of $867,088,818 in 1901. Every article in this class showed more or less gain over the movement five years previous, except breadstuffs, in which there was a decrease of almost $90,000,000. Yet the last year's total for breadstuffs was 70 per cent. greater than the year preceding. This feature of our foreign trade has fluctuated most erratically, and even now, with liberal crops assured, it is by no means certain that the shipments abroad will even approximate the big figures of earlier years. This is due, of course, to the rapidly increasing population here, which eats more wheat and uses larger quantities of the coarse grains in fattening live stock. Furthermore, the rise in value of land has curtailed operations in eastern tSates, while Argentina and other nations of vast undeveloped area are competing much more aggresively in the markets of the world. Comparisons of the values of breadstuffs exported show $177,350,476 for the latest twelve months, against $101,107,417 in the previous year, which was the low record for recent times, and $324,706,060 in 1898, the high record in this respect.

Cotton exports established a new record as to value at $400,426,967, but the quantity was only 7,041,168 bales, or less than in three of the preceding six years. As the cotton crop year begins on September 1st, the current season's figures cover only ten months, during which exports were valued at $365,726,408, or almost exactly the same as in the previous year, although the quantity shows a loss of 1,726,974 bales. This apparent discrepancy is explained by an average rise in export price of 2.3 cents per pound, or $11.50 per bale. As the movement during the two remaining months will probably average over $17,000,000, there is reason to look for a new high record of value, but by no means a large total as to quantity. Much has been said regarding the loss in outgo of provisions, but the value of exports in twelve months established a new high record at $191,056,536, the best previous exhibit being $179,875,250 in 1901, and cattle and hogs were exported to the extent of $41,303,526, which is within $1,200,000 of the high-water mark established two years ago. The outgo in June was larger than in May and considerably in excess of the corresponding month of any previous year since 1901. Petroleum shipments exceeded $80,000,000 for the first time on record, and the quantity also attained a new high figure at 1,189,767,584 gallons, seven of the twelve months recording over 100,000,000 gallons each, whereas such a monthly showing was amost unprecedented prior to 1905. As exports of manufactured products have steadily increased in recent years, the favorable exhibit for farm staples is especially encouraging, and the large crops now indicated for 1906 make the outlook very bright for the new year's foreign trade.—*Dun's Review.*

Steam Power on the Farm

By MR. E. W. VOORHEES, of the Henry Mfg. Co., Peoria, Ill., U. S. A., in *Metropolition and Rural Home.*

From the very beginning Nature has been most lavish in providing the things necessary for the comforts of mankind but in doing so it has come "in the rough," so to speak.

The very earliest history we have tells us that wheat has ever been the principal food of man. It, in common with other grains, grew spontaneously and uncultivated. Corn grew in our own country for our American Indian with scarcely any cultivation and the yield was something much beyond what would naturally be supposed, and even to-day, in many of the wilder portions of the world, wild grains still grow, providing a means of sustenance for natives.

Of necessity the first thing that appealed to man was how he was going to get these grains that grew enclosed in a head on a stalk, into a condition so it could be made into bread, cakes, or whatever they used in those days, so that the first thing he did was to provide some sort of a sickle or hook to cut the stalks of grain, and he would then collect them together. Then the problem would open up, how was he going to get the little yellow grains away from the straw and chaff so that he could use the grain for his own food and have the straw to feed his cattle? For a great many centuries the only process that occurred to them to use was by using something of the nature of the modern flail, consisting of two sticks, one perhaps five feet long and the other two and a half feet, connected together with a thong, so that by swinging the longer end of the combination the other could be brought down with considerable force, full length, on the bundle of grain on the ground. Then with the use of forked sticks the straw would be carried away, and by throwing what was left up in the air, the wind would blow away the chaff, leaving the clean grain. This same necessity exists to-day and the modern thresher is only an evolution brought about by the needs of man, and the necessity of being able to perform more of this work within a shorter time.

THE MALECON, HAVANA.

A beautiful harbor-side outing place for Cuban beauty and chivalry. Restored by General Wood from a dumping ground to its present attractiveness. To-day, it is the center of fashionable dress display. There is music by the Municial Band, which is composed of sixty-five pieces, and plays every other night.

Following through the ages came such processes as making a threshing floor from fifty to one hundred feet in diameter, and tramping it out with their own feet, then later with the use of cattle, and for many centuries this was the method that obtained everywhere. This was necessarily slow and had the disadvantage of cracking a good many of the grains and making it unfit for food purposes, and even to-day in many parts of the old country, and in such countries as Syria, Turkey and even Spain, they have no better way of threshing their grain than this and in our own beloved country even within the lifetime of people now living under forty years of age in the new countries just developing before it was possible to have threshers shipped grain has been flailed.

The writer remembers upon his father's farm in Iowa, in the year 1869 we raised quite a large crop of flax and the machines in those days not being arranged to thresh flax we made a threshing floor something after those spoken of in the Scripture and the grain was threshed out by the use of both horses and the flail, and that particular crop, just as we had it about all finished up, took fire and the whole thing burned up.

The first departure from these old methods was undertaken by a Scotchman by the name of Andrew Mieckel, who, in 1787, perfected a thresher, which in main points, differs very little from the modern thresher. It consisted of a feed table, a cylinder, a beater, and screens that would allow the chaff and grain to get through, carrying the straw on over and throwing it out at the back of the machine. By this process it was necessary to run this grain and chaff through a fanning mill in order to clean the grain. All of this was a very slow process, of course, yet it was ever so much more rapid than had ever been attempted before.

So that at that point really began the development of the threshing machine, and ever since that time, not only in European countries but also in America, the genius of man has been busy in improving all parts of this machinery. The English people as well as the Germans, who are the principal builders of threshing machinery in the Old Country, still adhere to the original system of having what we term rasp or fluted cylinders, to take the grain from the head, claiming that this process is less calculated to break the grains, and, particularly, leaves the straw less broken. While there may be some virtue in these claims, yet they sacrifice a great deal in the way of speed, capacity, etc., in using this system.

In using an English thresher, the grain is thrown in a hopper on top of the machine, and from thence, going through the different cylinders, beaters, etc., very much like the American makes of machines.

All American machines that are designed for threshing the principal grains, such as wheat, oats, barley, rye and flax use what is called a tooth cylinder. A thresher of average size would have in the neighborhod of 100 teeth inserted at regular intervals in the bars of the cylinder, and have from 30 to 40 teeth in the concaves. The teeth from the cylinder whirling in between the teeth of the concave, knocks the grain out of the head and carries the straw on back to the beater where the work is finished, and then the grain is carried over vibrating tables that thoroughly shake the grain out, the straw being carried on to the rear of the machine to be cared for by the stacker.

When you come to sum it up, the many improvements that have been added to this class of machinery from time to time have been largely along the line of the attachments necessary for the feeding of the machines, of taking the straw away, and taking care of the threshed grain as it comes from the grain spout.

Twenty years ago all the feeding of the machines was done by hand, the man feeding standing in the dust, shaking up the bundles so as to have the straw go into the cylinder evenly to prevent slugging, the bundles being handed him by a man who stood at his side cutting the bands with a knife. Now, with the modern band cutter and self-feeder, five or six men pitch as hard as they can work, throwing it into the self-feeder any old way, and are unable to choke the machine down, the apron to the self-feeder carrying the sheaves past knives that cut the bands and little vibrating tables with fingers in them pushing the bundles into the cylinder.

When the demand came for the large machines like those used now, it was a physical impossibility for men to catch the grain as it came from the grain spout in half-bushels, and throw it into a wagon standing by their sides, so that self-measuring devices have been the outcome. When the writer was a boy there was a machine came into our neighborhood on one memorable day and threshed 1,000 bushels of oats and one man measured it, and that has always been considered the standard of a big day's work measuring.

With the modern elevator and weigher, five or six thousand bushels of grain will go

through and be registered, counted accurately, and the grain run directly into a wagon or into the granary so when the job is all done all you have to do is to look at the register and pay up.

One of the latest improvements to threshing machinery has been the automatic stacker. In former days the straw was deposited at one spot on the stack and required four or five men to carry it out further and build up a stack.

Modern threshers nearly all have what is known as the wind stacker or blower, which takes up all the straw and chaff as it comes from the thresher, and is blown by a fan up through a tube, that really looks to be a small one, and is thrown up on the stack. This oscillates automatically and builds a half-moon-shaped stack; and it is possible to build a nicely shaped stack that will shed water well, without a man on it at all.

In the great Northwest, where the straw is not preserved, these stackers are set with the wind, and when properly elevated will blow the straw back several hundred feet from the machine, so that it is not necessary to move until a couple of days threshing is finished; then the machines are drawn away and the straw burned.

THE JINRIKISHA AND ITS OCCUPANTS.

These airy and easily drawn vehicles have been almost the sole means of land travel in China and Japan.

There is another style of automatic stacker used which oscillates the same as the blower, but the straw is carried up by means of a raddle rake instead of using air.

The size of machine used varies much in the United States, owing to the local conditions, it being the practice to use as large machines as can be handled safely over bridges, on country roads and over the extremely hilly parts of the country such as is found in Tennessee, the Carolinas and other points. In such localities a thresher with a twenty-four-inch cylinder and thirty-six inch separator would be about the average, and could use from an 8 to 12 horse-power engine.

In the great grain fields of Kansas, Nebraska, the Dakotas and Manitoba, a 30 horse-power engine and 42 by 70 separator would not be considered large, and there 3,000 bushels a day would not be considered a large average. In those states threshing is usually done by a crew who have their own cook-house and sleeping quarters, so that all the owner of the farm has to do is to haul the grain away, having no expense whatever. For such threshing they usually get from 8 to 10 cents a bushel.

It was the evolution of the thresher from a diminutive affair to these large machines, that made the modern traction thresher engine a necessity. Threshing is always done in very hot weather, and when they use to use horse power with from ten to twelve horses doing the work, the horses would often be overcome by the heat; and the dust they would raise by going continually in a circle made it very oppressive for them, so that in the early '70's portable steam engines began to be used for threshing purposes, and just a little later these were supplanted by the traction engine, which would not only draw themselves, but also haul the thresher behind them, and replaced horse power in the operation of the thresher itself, the only expense being the investment for the engine, the coal used and one man as engineer 1,500 to 2,000 pounds of coal usually answers for a day's run. The later improved tractions are wonderfully effective, pulling quite long trains consisting of the thresher, the water tank and wagons necessary to operate the rig, taking them over quite steep hills, and traveling at the average rate of two to three miles an hour. By their use much steadier power is obtained as well as a great deal more of it, so that the amount of threshing possible only depends upon the amount of grain the thresher will handle without wasting it.

There are at the present time more than 30 builders of traction engines and threshers, with plans of more than ordinary proportions, some factories building as many as 2,000 engines annually, and an equal number of threshers. There are two distinct kinds of engines built by the different factories, and some factories build both these kinds, namely the return flue, or marine style, and the direct flue boiler, and the fact that there are a great many of both kinds built, and both liked, only proves that both must be good. And then again, there are a great many different ideas in use in the building of these styles, such as single cylinder engines, double cylinder engines, cross compound engines, etc.

About the latest thing in traction engine building, is the under-mounted, double cylinder style, which very much resembles the modern railroad locomotive. It is considered a very handy type, and is meeting with general favor. In the heavily settled parts of the country these thresher outfits have become pretty thickly distributed, making the threshing season short, hence have been developed many other uses for the engine, so as to enable their owners to have larger earnings, so that now engines are used for corn-shelling, sawing, rock-crushing, road-grading and steam plowing.

The steam plowing proposition has, within the last year or so, been coming to the front very rapidly, and this was brought about by the fact that it has been demonstrated that with a suitable traction engine, plowing can be done when it is too dry to use horses, and in many parts of the country horses are scarce and high priced, in the big wheat growing belts there are very few horses needed in proportion to the amount of ground farmed, so that when it is possible to plow ground satisfactorily with a traction engine, it solves a very important problem for them. Such an engine, to be effective, must be especially built for the work, as it requires a much heavier and stronger built engine to stand this strain day after day, than the average traction engine. In fact, it is often possible to thresh all day and plow all night. Of course the engine never tires. It simply requires two sets of men to operate it. By the use of head-lights this is very easily accomplished. The outfit shown in the illustration has 10 fourteen-inch plow bottoms, cutting a swath of 12 feet, and easily covers an acre every 20 minutes, and under ordinary circumstances the plowing is being done in many parts of the country for less than 50 cents an acre, which is less than half the estimated cost with horses.

One of the principal advantages of plowing by steam is, that there is always a certain time when the ground is in the best condition to plow; and when it is plowed at that time will produce better crops throughout the season, so by plowing an entire farm right at that critical time it has this advantage, as well as the other advantage of getting this part of the work out of the way so that other work can be done, and often in the Fall of the year the ground is so hard it is impossible to plow it with horses at all.

This interferes very little with traction engine plowing, as these engines with plows made especially for them will turn the ground, however dry it may be. On some of these large ranches they simply can't wait. It takes considerable time to plow four or five thousand acres, even if you can plow three acres an hour.

These plows have a steam hoist so that they can be handled as readily as an ordinary plow, going into the corners of the field and turning around the head lands just as nicely. It requires two men to run the rig and a water boy to run the water tank and look after the supply of water and coal, this being taken on while the rig is in motion, as every minute counts. Not only are these rigs used for large ranches, but companies of farmers buy them to do their own plowing with. It will be understood that the same engine that is used for the plow is just as useful for threshing, sawing, or any other work for which a traction or stationary engine might be used, as it is for plowing, so that no additional investment is required other than the cost of the plows. These range from $200 to $1,500, depending on whether ordinary gang plows are used, or whether you buy the specially made steam plow—a complete outfit costing, therefore, from three thousand to four thousand dollars.

It is possible to use either the ordinary stubble or sod breaker bottoms, and in a good many places they are used with disc plows.

Outside of the steam plow outfits built in America there are none worth mentioning, excepting there is a system of plowing in England which consists of two engines, both having drums underneath. One of these engines is stationed at one end of a field and one at the other and by means of a cable draw a reversible plow back and forth across the field, having three or four bottoms on it. This will do the work all right and has the advantage of the engine not having to run over the ground. On the other hand, it is much slower than the American system and costs a good deal more money—approximately $20,000. The foreign demand for steam plows is ever so much heavier than anyone not acquainted with the facts would dream of. South Africa, all parts of South America, West Indies, Egypt, Russia, farther India and Australia, all want such a thing. In many places the scarcity of horses prompts it, and what is true of steam plows is also true of American threshers. It is a little hard to say just what per cent. of threshing machinery made in the United States is exported, but the exportation to the Argentine Republic alone amounts annually to upwards of two million dollars. No other country takes as much American threshing machinery as does this one, yet the total is very heavy elsewhere, so that we would estimate that perhaps fifteen to twenty per cent. of the output of the American thresher concerns goes into other countries than the United States, which makes a splendid outlet for the surplus of our factories and insures their steady operation at a time that otherwise, with poor crops at home, many of them would be closed down a goodly part of a season.

As indicated in another part of this article, American machinery everywhere proves its superiority in the matter of capacity as well as in the quality of work done, and it has been demonstrated that while doing a great deal more than foreign makes of machines, it will do it with just about half the amount of labor, which means a wonderful saving.

For the Mexican trade as well as for the trade in South Europe, Straw Bruisers have to be provided for the threshing machines. This is an attachment built on the back of the separator and having teeth or spikes something like what is used in the thresher cylinder, whose work it is to tear the straw up into small pieces and deliver it out to the straw carrier, it being used for feed for cattle and horses. In these countries they raise very little hay, but depend on this bruised straw for their rough feed, claiming that they get more nutriment from it than when it is left whole, as is done here in America.

Thirty years ago threshing time was one of the most strenuous occasions that came to the farmer's anual experience, and was something that was dreaded as much by the women folks of the house as the farmer himself, as it required two or three days to thresh the average crop, with fifteen and twenty men and as many teams to be fed and housed, and the stacks of fried chicken and applie pie that disappeared during these days was something wonderful to behold. This is now all changed. The threshing crew come down the road with their whole outfit en train, pull in alongside of the stacks, and in ten minutes are at work, and no one is surprised if they are threshing ten bushels per minute. The sheaves being fed automatically, the threshed grain runs directly into the farmer's wagons, the straw being stacked automatically, taking away most of the laborious and dirty part of the work of the old times, and for the average farmer one day cleans up the whole job and the thresher has moved on to the next setting. Perfection seems to have been reached, yet there is little doubt but that every succeeding year some of our enterprising thresher builders will continue to add new and useful improvements to increase the capacity and efficiency of this class of machinery.

CAVALRY MOUNT

Mounting practice at West Point, N. Y., U. S. A., showing the manner of mounting a horse. The entire line of men is drilled into exactness and quickness of movement, and step from the ground at the same instant and seat themselves in the saddles.

VEHICLE BRAKES

Nineteen years ago, Morgan Potter, of Fishkill-on-Hudson, N. Y., U. S. A., had a number of vehicles equipped with his spring brake blocks, nearly all of which are still in effective service, showing no expense for repairs during all these years except the usual renewal of wear shoes and occasionally a new coil spring. Some of these brakes have completely outworn the vehicles to which they were first attached and have been transferred to other wagons, and are good for many more years of active service. Mr. Potter has been privileged to see his spring brake blocks used very extensively throughout the United States from Maine to California, and very largely by most of the high-grade carriage and wagon builders. Large numbers of these brake blocks are also exported to Europe and other foreign countries, including Australia, New Zealand and Hawaii Islands.

Mr. Potter believes that the best brakes are none too good for even cheap wagons and that any brake that will not always hold, whether the vehicle is lightly or heavily loaded, is worse than useless and money thrown away. During all these nineteen years as exclusive manufacturer of the celebrated Potter spring brake block, he has had quality as of first importance, and the best grade of stock has always been used for each particular part.

The mechanical part has always been of the highest order and no expense has been spared in procuring the most improved machinery for this special work. Many improvements have been made from time to time on the original Potter block, and to-day, as in the past, these goods are without an equal on the market. Realizing, however, the necessity of something better for general use than the non-adjustable brake in connection with the Potter spring blocks, he has recently put on the market a "complete adjustable spring brake," which is made in several styles ready to attach to a carriage or wagon of any style or weight. This new brake has been put to the most severe everyday test for the past year, and found to be equal to every emergency, supplying a long-felt want. Every one of these brakes is fully guaranteed and cheerfully sent on trial to every responsible party. A new catalogue will soon be issued which will fully illustrate the new brake with the several adjustable parts and will also cover the full line of Potter's spring brake blocks, which are now made in several styles and in fourteen sizes, adapted to either steel or rubber tires. A copy of this catalogue may be secured by addressing Morgan Potter, Fishkill-on-Hudson, N. Y., U. S. A.

THE MONROE DOCTRINE

Secretary Root performed an invaluable service on his recent tour in South America by presenting the Monroe Doctrine in its true light as founded upon the belief that our southern neighbors are fully equal to the task of governing themselves without outside interference.

The first country the Secretary visited after leaving Brazil was Uruguay, which was also the only country in which there had been hints that his reception might not be cordial. The prophets of evil came to grief, for the warmth of the Uruguayan welcome was all that could be desired. The Charleston reached Montevideo on August 10th. The crowds assembled to greet the visitors had begun to cover the piers early in the morning, and before the cruiser appeared, the whole population seemed to be on the water front. The people shouted, "Long live Secretary Root!" "Long live President Roosevelt!" "Long live the great Republic of the North!" With a reception by the president, a military parade, a gala performance at the theater, and the streets filled with cheering crowds, the city seemed to think of nothing else than its welcome to its guests.

At a dinner given by President Ordoñez the next day, Mr. Root cleared away all misconceptions at the very beginning of his address by saying: "The great declaration of Monroe, made in the infancy of Latin-American liberty, was an assertion to all the world of the competency of Latin-Americans to govern themselves and their countries. That assertion, my country has always maintained; and my presence here is, in part, for the purpose of giving evidence of her belief that the truth of the assertion has been demonstrated."

While the Secretary emphasized the solidarity of the American republics, he disclaimed any desire to injure Europe. On the contrary, he expressed the belief that the European countries which had established colonies in America had gained more benefit from their independence than they would have found in maintaining the colonial system. "In the establishment of the free and independent nations of this continent," he observed, "they have obtained a profitable outlet for their trade, employment for their commerce, food for their people, and refuge for their poor and their surplus population.

"We have done more than that. We have tried here their experiments in government for them. The reflex action of American experiments in government has been felt in every country in Europe, without exception, and has been far more effective in its influence than any good quality of the old colonial system could have been, and now our prosperity only adds to their prosperity."

The Uruguayans were not slow in catching the drift of the Secretary's remarks. Dr. Zorilla de San Martin said that democracy was based on the equality of the strong and the weak, not only among individuals, but among nations. Mr. Root deserved well of America because he had proclaimed international democracy. Mr. Root replied significantly that Uruguay, though small, formed part of a continent whose collective force imposed respect for its rightful interests. The newspapers of Montevideo united in expressions of gratification over the American Secretary's "eloquent and frank declaration of the true policy of the United States toward the Latin-American republics."

Before his departure for Bunos Ayres, Secretary Root crowned his reputation as a diplomatist by saying at a banquet that he especially admired the beauty of Uruguayan women, and that there were moments when he would like to discontinue his voyage and remain forever in Uruguay.

PROGRESS IN CHINA

Progress in China has recently been shown in a remarkable, if not unique way. The people of a village in the province of Fukien held a meeting, and determined to break up the opium habit. At the suggestion of two men, who had gone to the Fuchau City Hospital for treatment for opium-smoking, letters were sent to the head of the hospital asking him to come to A-iong and help them. One contained a respectful and carefully worded agreement signed by the village elders and principal men. Doctor Wilkinson, who tells the story in the *Church Missionary Intelligencer* for July, accordingly went to the village, and found that practically all the people were anxious for the reform. At a meeting with the head men, the opium shopkeepers themselves stood up and said they were willing to stop selling the drug, and fifty dollars was raised to defray the cost of medicines. Last March, the village ancestral hall was turned into a hospital, and seventy-nine men patients were admitted, a woman from the mission having charge of nine women in another place. For three weeks they were treated, during which time only two lost courage and left. Daily morning and evening religious services were held, with an increased interest as time went on in the singing of hymns and the simple Bible talks. During the day the tedium of the patients was relieved by magic-lantern, photographic and gramophone exhibitions. What the result of the movement will be it is, of course, impossible to say, but at the request of the village elders and head men, the mandarin put up a proclamation forbidding any one to again open an opium shop in the village. lage.

PECULIARITIES OF SUBMARINES

Equilibrium is almost as difficult to maintain for a submarine vessel as for an aeroplane. With modern large submarines, says Sir W. H. White, the act of diving is performed when the vessels have headway. The bow is depressed by horizontal rudders controlled by skilled men, and the vessel moves obliquely downward. The desired depth having been attained, the steersman must so manage the horizontal rudders that the vessel shall practically maintain its level, but, in fact, its course becomes really an undulating one, up and down. There must be no movements of men or weights in the vessel without immediate compensation to restore and maintain the balance, else the submarine may dive to a disastrous depth. Manual has been found better than automatic control.

EVOLUTION OF AN IDEA

March 10th as the thirtieth anniversary of the day on which the first telephone message was heard by the inventor and his assistant. The place was the upper floor of a boarding house in Boston, where experiments had been going on for nearly a year. It was in 1874 that Alexander Graham Bell, a professor of vocal physiology in the Boston University, became convinced that several Morse dot-and-dash messages could be transmitted at the same time over a single wire. In dealing with the subject, his next idea was to utilize the sympathetic vibration of strings attuned to each other. Beginning with harmonic telegraph experiments in 1874, conducted in his own room, with clock springs as the main part of his apparatus, he gradually worked over into electro-magnet appliances. It was then that Bell reached the conclusion that the telegraphing of speech was possible, and the true principle he announced to his associate was that such transmission would depend on an instrument securing analogous vibrations. It was on June 2, 1875, that Bell succeeded in sending by electricity the quality of sound, and in the following March, the first spoken message was received by him in his humble apartment.

In the genesis of the telephone, the evolution of an idea can be followed in halting steps. In fact, the original idea went through a transformation, and some of the electrical results produced were not expected or planned, but the main conception was correct. The snapping of a spring, the first sound exactly reproduced, may be called accidental, but the foundation had been laid, and the conditions sought, were recognized when happened upon. Many special difficulties had to be investigated and removed before the invention was given to the public, and long after that were encountered balks not easily surmounted. The messages at length became so sure that in the following summer, the invention was exhibited at the Philadelphia Centennial. Among those who examined it, there was the eminent British scientist, Lord Kelvin, who expressed his delight, and reported that "This, perhaps the greatest marvel hitherto achieved by the electric telegraph, has been obtained by appliances of quite a homespun and rudimentary character." In the fall of the same year, messages were distinctly sent over two miles of wire between Boston and Cambridgeport.

A company to introduce the telephone commercially began operations in the spring of 1877 and, shortly after, Bell tried to send messages between Boston and New York, but long distance lines were a disappointment until an inventor introduced hard-drawn copper wire. The requisite conditions are an old story now, when Boston easily carries on a conversation with Omaha, but many were the critical times when experiments seemed to indicate failure in certain of the utilities now grown commonplace. In its early years, the telephone was looked on as only a curiosity, but to-day its subscribers are numbered by millions. It goes to the farms as well as cities and villages, and is an intimate part of business and social life. Great is the indebtedness of the world to American inventors, whose activity is a sort of inspiration. They do not always realize their ideas, but they are seldom second in reaching the truth that lies at the bottom of the well.—*Scienific American.*

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Under no circumstances do we allow commissions to advertising agents.

CROP REPORTS

The government's August crop report points to a crop of 2,713,914,000 bushels of corn, which is slightly in excess of last year's crop; and to a total yield of winter and spring wheat of 772,264,000 bushels, as compared with 692,979,000 bushels in 1905.

THE AMERICAN REPUBLICS

In a speech at a special session of the Pan-American Conference at Rie de Janeiro, Secretary Root assured the representatives of the Latin-American republics that the United States wished for no territory except its own, would treat the rights of the weakest nation with the same respect as those of the greatest empire, and claimed no privileges that it did not freely concede to every American republic. The speech was cordially received, and it is believed that it will go far to dispel any existing distrust of the purposes of the United States. Mr. Root made the meeting of the conference the occasion for a visit to the capitals of the South American republics, where he was warmly greeted.

COMMERCE WITH CUBA

Commerce of the United States with Cuba in the fiscal year just ended was greater than in any earlier year of the trade relations between the United States and that island. This is particularly true of exports. The imports from the island fell slightly below those of 1905, due to the fall in the price of sugar, but the exports to the islands were 25 per cent. greater than in 1905, 75 per cent. greater than in 1904, and about 120 per cent. greater than in 1903.

The growth in the exports to Cuba during recent years has been very rapid. The value of exports to that island had never reached the twenty million dollar line until the year 1893, when they were twenty-four millions. In 1894 they were twenty millions; then during the war period they dropped as low as eight and one-quarter millions, but in 1900 again crossed the twenty million line, being in that year twenty-six and one-half million dollars. In 1903 they again dropped to a little less than twenty-two millions, in 1904, twenty-seven millions, in 1905, thirty-eight millions, and in 1906, $47,763,688.

In imports the gain is less strongly marked. Prior to 1895 the value of the imports into the United States from Cuba ranged in most years from fifty to seventy-five million dollars, being in 1874 eighty-five millions, and in 1893, seventy-eight millions. The year 1905, however, made a record slightly higher than that of 1874, the total value of imports from Cuba in 1905 being $86,304,259. In 1906, the fiscal year just ended, the value of imports into the island was $84,979,831, a slight decrease as compared with 1905.

This fall in the value of imports from Cuba in 1906 was due solely to the fall in the price of sugar. The five articles forming the bulk of our imports from Cuba are sugar, tobacco, cigars and cigarettes, iron ore, and bananas. Of these, the most important by far is sugar, which amounted in value in 1906 to sixty million dollars; tobacco, thirteen and one-half millions; cigars and cigarettes, four millions; iron ore, two millions, and bananas, one million.

ODESSA AND NEW YORK

Vice-Consul Smith, writing from Odessa, rejoices in the fact that a new steamship line is to put steamers on between that port and New York. This will do much to facilitate trade between the United States and Black Sea ports, possibly adding Levant and Mediterranean ports. Mr. Smith writes:

Owing to the initiative of A. Rzhevuski, director of the Russian Steam Navigation and Trading Company, that company is about to institute a direct passenger and goods carrying line between Odessa and New York with steamships fully equipped for the transportation of emigrants. A steamer will leave the latter part of September.

The duration of the voyage from Odessa to New York will be twenty days. The steamers will leave periodically. During the present year it is contemplated to send two steamers. Thereafter communication with America will be resumed in the spring of next year.

FOREIGN COMMERCE INCREASING

The foreign commerce of the United States has grown much more rapidly during the last decade than its population. Complete figures for the fiscal year 1906, just presented by the Bureau of Statistics of the Department of Commerce and Labor, show that while the population has grown, since 1896, but 20 per cent., imports have grown 57 per cent., and exports 109 per cent. The classes of imports which now show the greatest gains, are manufactures, and manufacturers' materials imported show an increase of 95 per cent. On the export side, agricultural products and manufactures show the largest gains. Agricultural products exported show an increase during the decade of 70 per cent., and manufactures, an increase of 163 per cent.

This increase has occurred in the trade with all the grand divisions of the world, but is especially marked in the trade with Asia and Oceania. Imports from Europe show an increase of 50 per cent., those from North America, of 80 per cent., those from South America, of 30 per cent., and from Asia and Oceania, 80 per cent., and from Africa, 13 per cent. Exports to Europe show an increase of 78 per cent., those of North America, an increase of 164 per cent., to South America, 107 per cent., to Asia and Oceania, 232 per cent., and to Africa, 41 per cent.

Some remarkable changes have occurred also in the routes of travel followed by this increased traffic. Comparing conditions in 1906 with those of 1896, the Atlantic ports show an increase of 329 millions in imports, and 426 millions in imports and 57 millions in exports; of 50 millions in imports, and 262 millions in exports; the Pacific ports, an increase of 17 millions in imports and 57 millions in exports; the Northern border and Lake ports, an increase of 42 millions in imports, and 116 millions in exports; while the interior ports show an increase of about 9 millions in imports.

POST CARD ORDER

It will be seen from the following official circular that on and after October, the left-hand side of the face of all post and picture cards, as well as the back, can be used for communication purposes:—

As the Universal Postal Convention recently concluded in the City of Rome, Italy, to take effect on the 1st of October, 1907, provides for the admission to the mails exchanged between the countries of the Postal Union, on and after said date, of post cards bearing messages upon the left-half of the front of the card as well as upon the back of the card; and as such cards are now admitted, at the postage rate applicable to post cards, to the mails exchanged between countries;

It is hereby ordered that post cards bearing a message upon the left-hand of the front—the right-half being reserved for the address—which may be contained in mails hereafter received in the United States from other countries, shall be considered and treated as post cards; and when postage at the rate applicable to post cards in international mails has been prepaid thereon in full, shall be delivered to addresses without additional charge for postage.

GEORGE B. CORTELYOU, Postmaster General.
Washington, D. C., June 28, 1906.
Order No. 1047.

MORE RECORD CROPS

The crop reports issued by the Department of Agriculture on August 10th, indicated another record-breaking year. Preliminary returns put the winter wheat crop at 493,434,000 bushels. The spring wheat crop was estimated at 278,830,000 bushels, making a total probable wheat harvest of 772,264,000, which is more than was ever produced in any other country in the world, about 160,000,000 more than our own average production for ten years preceding, and nearly 24,000,000 more than our greatest previous year's production, in 1901.

Along with the greatest wheat crop, we also have the promise of the greatest corn crop on record—no less than 2,713,194,000 bushels. Add to this a 12,000,000-bale cotton crop, an excellent tobacco crop, and crops of oats, barley, rye, and other minor cereals ranging from fair to prime, and it seems evident that the farmers of the United States will have more money to spend, the railroads more freight to carry, and the merchants more goods to sell this year than last. All through the winter wheat belt, there has been a remarkable increase in the yield per acre. The gain is unbroken, from Pennsylvania to California. In Indiana and Ohio, old States whose soil might be expected to be showing signs of exhaustion, the average yield has gone above twenty bushels to the acre—a yield that would have been considered good a few years ago for an exceptionally favored farm. In Nebraska, the average has risen to 23.2 bushels. Last year, when we had the next to the largest wheat crop ever produced up to that time, three of the eleven principal winter wheat States averaged less than twelve bushels and only two less than fourteen. Last year only three States went above eighteen bushels; this year three have gone above twenty. This year's gigantic crop of 772,000,000 bushels of wheat of all kinds has been produced on an acreage ten per cent. smaller than the 1899 crop of 114,000,000 bushels less.

It is a noteworthy fact that the amount of land sown to wheat in the United States seemed to reach its limit seven years ago. In 1899 we had 52,588,574 acres in wheat—an area equaled that figure since. In other words, the State of Kansas, if it were all good wheat land, could produce all the wheat we have ever raised in the United States in any one year. While we have over three million square miles of land in all, it appears that only about 80,000, or less than 3 per cent. of the whole, can be devoted to wheat-growing. This year's record crop has been raised on less than 75,000. The only prospect of a material increase is found in the reclamation of arid lands by irrigation.

The corn crop is one of vastly more importance to the United States than the wheat crop, although that is the greatest in the world. Our 2,713,000,000 bushels of corn this year would load a freight train extending two-thirds of the way around the globe. The crop has been raised on 95,535,000 acres of land—about twice the acreage devoted to wheat and the greatest ever given to corn in our history. The American cornfields are about equal in extent to the Japanese Empire, and their yield in a single year would pay off the national debt of the United States.

Last year, Secretary Wilson said, in his annual report, that if the American farmer could go on without relapse for three years longer, he could look back over a decade and find that in those ten years he had produced an amount of wealth "equal to one-half of the entire national wealth produced by the soil and composed of the surpluses and savings of three centuries." One of the three years has passed, and instead of a relapse, there has been an advance. This year's crops alone would pay for half the railroads of the United States.—*Collier's.*

Consul F. W. Goding writes from Newcastle that a large amount is expended annually in that part of Australia in the purchase of American tools, but that a much larger business could be had if personal representations were made. He gives the names of dealers, which can be secured from the Bureau of Manufacturers; likewise a list of the dealers in musical instruments at Newcastle.

DENMARK AND AMERICA

Acting Postmaster-General Hitchcock has signed a parcels-post convention with Denmark, to take effect on October 1st.

It provides for the exchange and transmission through the postal service of both countries of parcels which weigh no more than 4 pounds and 6 ounces nor measure more than 3 feet 6 inches in length and 6 feet in length and girth combined. The value of the parcels carried is also limited to $50. Postage must be prepaid in full at the following rates: In the United States, on parcels for Denmark, 12 cents for each pound or fraction of a pound.

In Denmark, on parcels for the United States, 60 ore for a parcel not exceeding 1 kilogram in weight, and 1 krona for other perceels. A delivery charge not exceeding 5 cents in the United States may be collected of the addresses of each parcel. The parcels-post regulations applicable to parcels for Norway apply also to parcels for Denmark. Parcels-post mails for Denmark will be made up at the New York post-office.

BUYING SILVER

For the first time since the repeal of the silver-purchase clauses of the so-called Sherman act, 13 years ago, the government is buying silver. The bullion is needed for coinage into small pieces. There are abraded silver dollars in the Treasury which are not current because of their light weight, and a bill was introduced in Congress at the last session to authorize the recoinage of these dollars into subsidiary coins, but it failed to pass.

EXPORTS OF AGRICULTURAL IMPLEMENTS

ARTICLES AND COUNTRIES	JULY—		TWELVE MONTHS ENDING JULY—		
	1905.	1906.	1904.	1905.	1906.
Mowers and reapers, and parts of	$ 767,891	$ 627,117	$ 9,531,781	$ 9,013,003	$ 9,514,753
Plows and cultivators, and parts of	119,972	179,501	2,245,593	2,171,506	2,654,440
All other, and parts of	373,956	591,773	5,018,723	3,958,972	5,540,975
Total	$1,261,819	$1,398,391	$16,778,097	$15,143,481	$17,710,168
Exported to—					
United Kingdom	28,104	48,887	1,581,610	839,178	877,091
Belgium	3,223	10,588	210,748	170,001	238,776
France	21,190	132,844	2,910,336	2,643,286	2,899,419
Germany	60,254	62,766	1,215,573	1,182,969	1,728,230
Italy	11,234	19,431	124,627	228 920	354,866
Netherlands	1,925	12,509	218,920	191,177	509,078
Russia	12,673	8,502	2,906,076	3,696,145	3,391,167
Other Europe	44,186	79,124	1,211,216	1,064,717	1,346,532
British North America	170,219	260,943	2,396,632	938,606	1,667,178
Central American States and British Honduras	1,167	1,534	6,348	10,327	10,454
Mexico	26,350	20,420	215,729	226,727	330,729
Cuba	16,944	9,649	79,923	156,172	88,528
Other West Indies and Bermuda	563	1,413	6,923	6,615	8,922
Argentina	706,405	463,004	2,129,742	2,574,698	2,561,396
Brazil	8,568	9,576	27,979	132,128	58,744
Chile	8,664	69,497	89,953	48,476	221,637
Colombia	287	1,878	1,366	1,684	4,741
Venezuela	114		445	731	1,388
Other South America	23,676	8,817	68,249	119,208	161,343
Britsh East Indies	196	501	39,090	31,971	44,886
Bristsh Australasia	41,715	106,812	866,035	404,595	466,423
Philippine Islands	4,437	975	19,947	19,613	47,357
Other Asia and Oceanica	1,820	27,931	35,521	95,536	347,827
British Africa	62,308	40,948	333,515	262,115	219,626
All other Africa	5,597	4,842	81,594	97,886	123,830
Total	$1,261,819	$1,398,391	$16,778,097	$15,143,481	$17,710,168

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Past experiences have not been wanting to impress the great lesson of fire-waste upon the American people. Witness the great Chicago fire of 1871 in which three and one-third square miles of buildings, were destroyed, involving the loss of $190,000,000, and two hundred and fifty lives, and the wrecking of fifty-six insurance companies; the Boston fire of 1872, laying waste 65 acres, with a loss of $80,000,000; the fire at Jacksonville, Fla., in 1901, with a loss of $10,000,000! the Paterson, N. J., fire of 1902, involving a loss of $8,000,000; the Baltimore conflagration of 1904, destroying 140 acres of buildings at a loss of over $50,000,000; and now the San Francisco calamity, said to approximate over $200,000,000 in property loss. Surely the list is sufficiently impressive to be taken to heart, but even these figures do not tell the whole story of our national fire waste in the United States. Many other conflagrations of lesser extent and fires in individual buildings have increased the total, year by year, until in 1904, insurance tabulations show that the total loss by fire in the United States was $230,000,000, or an average daily loss of $630,000.

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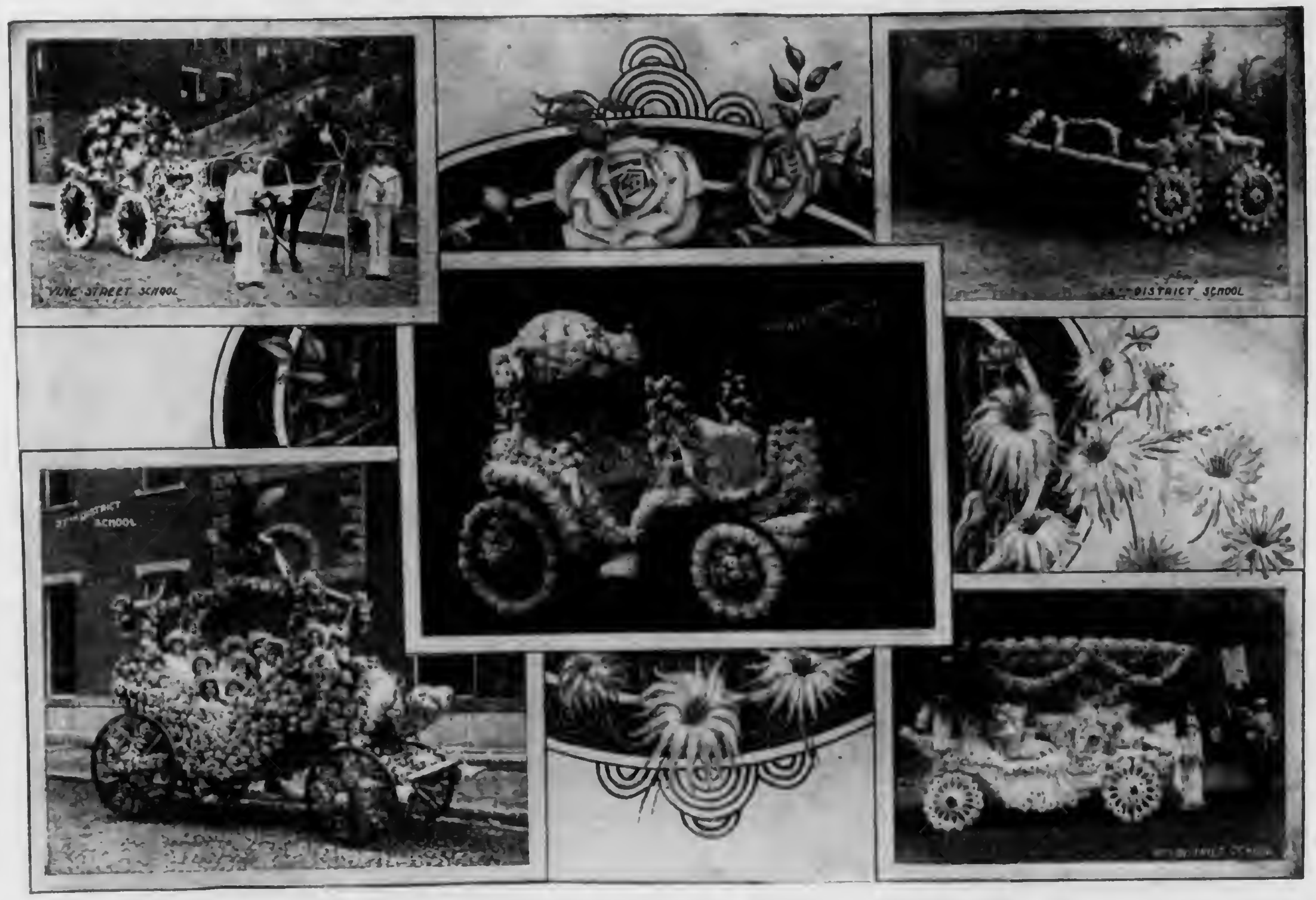

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Depuis plusieurs années, le docteur MacDougal conduit au Jardin Botanique de New York une série d'expériences identiques à celles de M. Burbank, et les résultats qu'il a obtenus semblent confirmer la théorie avancée il y a quelque trois ans par le docteur Hugo de Vries, d'Amsterdam, à savoir que la plante mère peut donner naissance à de nouvelles espèces immédiatement: celles-ci ne seraient donc pas toujours le produit d'une longue série d'années et d'une multiplicité de moindres changements, ainsi que le croyait Darwin.

Le docteur Davenport, membre du comité, est de même un étudiant enthousiaste des problèmes de l'évolution, et il est le directeur du Laboratoire de l'Evolution Carnegie, à Cold Spring Harbor. Le docteur MacDougal est le directeur des activités botaniques à l'Institut Carnegie.

Entre autres problèmes, l'anatomie micros-

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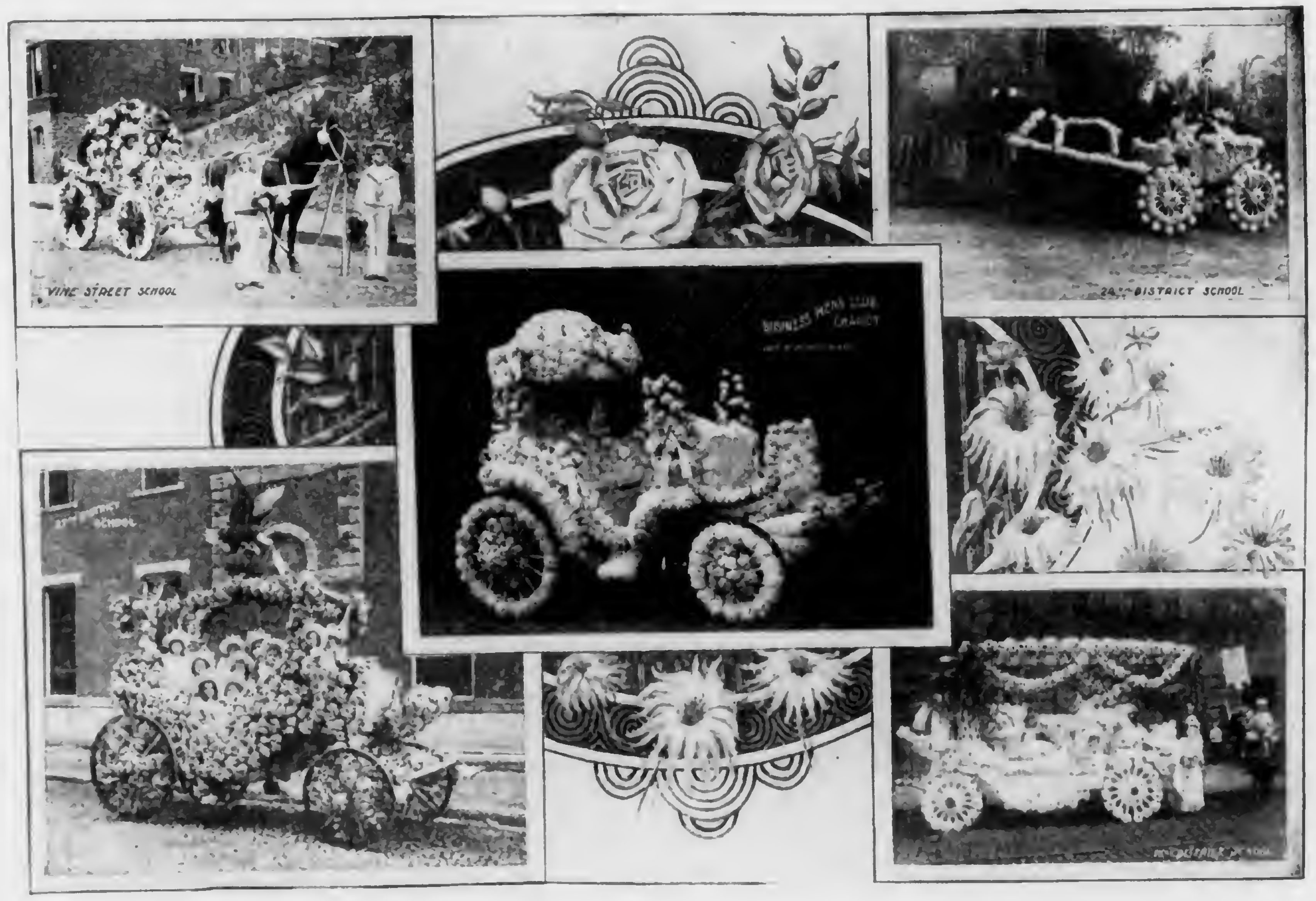

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Le comité comprend M. R. S. Woodward, président, et les docteurs C. B. Davenport et D. T. MacDougal. Ce comité fit récemment une visite à Santa Rosa, où il tint une conférence avec M. Burbank. Il fut décidé que les expériences en cours seraient continuées sans interruption; M. Burbank poursuit quelques-unes de celles-ci depuis vingt ou même trente années.

Divers membres du corps scientifique de l'Institut iront établir leur demeure avec M. Burbank et étudier de près ses plantes les plus remarquées. Ce travail a été entrepris dans le but d'obtenir plus de lumière sur l'hérédité et l'évolution.

Depuis plusieurs années, le docteur MacDougal conduit au Jardin Botanique de New York une série d'expériences identiques à celles de M. Burbank, et les résultats qu'il a obtenus semblent confirmer la théorie avancée il y a quelque trois ans par le docteur Hugo de Vries, d'Amsterdam, à savoir que la plante mère peut donner naissance à de nouvelles espèces immédiatement: celles-ci ne seraient donc pas toujours le produit d'une longue série d'années et d'une multiplicité de moindres changements, ainsi que le croyait Darwin.

Le docteur Davenport, membre du comité, est de même un étudiant enthousiaste des problèmes de l'évolution, et il est le directeur du Laboratoire de l'Evolution Carnegie, à Cold Spring Harbor. Le docteur MacDougal est le directeur des activités botaniques à l'Institut Carnegie.

Entre autres problèmes, l'anatomie micros-

INTENTIONAL SECOND EXPOSURE

copique des hybrides occupera une bonne part de l'attention des investigateurs de Santa Rosa.

On n'a en réalité que de maigres renseignements systématiques sur la manière dont les éléments de deux plantes dissemblables se combinent dans les hybrides, et le comité espère obtenir des lumières importantes sur cette question.

Incidemment le comité rapporte que "les travaux splendides de M. Burbank ont été abominablement dénaturés par divers écrivains: journalistes, auteurs de livres et d'autres, quelques savants et pseudo-savants; et que quelques-unes des plus simples opérations qui ont permis à M. Burbank d'améliorer certains fruits et certains légumes ont été grossies d'une manière sensationnelle, ce qui ne peut que faire du tort à la reputation de M. Burbank; on lui a même prêté des exploits qu'il ne revendique nullement."

On cite comme exemple le cactus sans épines auquel on a attribué les propriétés les plus merveilleuses. On l'a décrit comme ayant été produit par M. Burbank, tandis que, d'après le comité, M. Burbank croise un cactus, naturellement sans épines, avec un cactus épineux dans l'espoir d'obtenir une variété non épineuse et de développer d'autres propriétés qui feraient des hybrides des plantes précieuses comme fourrage et pour leurs fruits.

De grands progrès ont été réalisés dans ce sens, mais les résultats attendus ne sont point encore des faits accomplis.

Mais, d'un autre côté, une longue pratique, un enthousiasme inaltérable et vif pour ce genre de travail ont porté des fruits qui placent M. Burbank "au premier rang des éleveurs de plantes américains. Il travaille avec une vive intuition et il est capable de prédire la valeur probable de ses hybrides même des leur toute première phase de développement."

Le travail détaillé de l'étude des produits de la plantation de M. Burbank sera exécuté par le docteur George H. Shull, du poste d'expériences de Cold Spring Harbor et par le docteur W. A. Cannon, du Desert Botanical Laboratory, de Tucson (Arizona).

Tout les chercheurs intéressés dans la question et le comité ont fait le projet de se réunir en assemblée dans un avenir peu éloigné, dans le but de mûrir divers projets et de pourvoir à la continuation du travail entrepris.

Un système modèle

Les exploits modernes doivent beaucoup au système, qui n'est, évidemment, rien de plus que l'organisation dans la vie industrielle et commerciale, et, de fait, dans toute sphère d'énergie. Quand une tâche de vastes proportions est bien et aisément accomplie par un système élaboré avec soin, il est intéressant de noter la simplicité sur laquelle l'opération est basée. Nous empruntons à un numéro récent de la *Chicago Tribune* le compte-rendu suivant d'un système qui fonctionne avec succès à l'Ecole militaire des Etats-Unis de West Point (état de New York).

Faites entrer environ 500 jeunes américains, ayant, chacun d'eux, l'appétit d'un fils de fermier, dans une salle à manger, ne leur donnez que quarante minutes environ pour leur dîner, qu'un garçon soit chargé de servir, à lui seul, vingt de ces jeunes gens, et vous pouvez compter que dans cinq minutes vous aurez sur les bras une fière bagarre.

Supposez, de plus, que dans la cuisine il n'y ait que deux cuisines pour ces jeunes gens.

Supposez que 500 portions de bœuf rôti aient à être découpées et servies entre le moment où ils commencent à manger leur soupe et le moment où ils la finissent; que les légumes et le dessert aient à être servis; que les assiettes aient à être enlevées après chaque plat, et, finalement, que ces mêmes jeunes gens aient à sortir en ordre, sans confusion, et leur faim apaisée.

N'est pas là une besogne hargneuse et que même les plus grands des hôtels modernes n'oseraient entre prendre?

Et c'est pourtant là ce qui se fait trois fois par jour à l'Ecole Militaire des Etats-Unis de West Point. Il n'y a pas de bagarre au réfectoire, il n'y a pas de confusion dans la cuisine. La chose est possible parce que West Point possède la cuisine modele du pays. Les propriétaires des grands hôtels y envoient constamment leurs régisseurs et leurs chefs de cuisine examiner et étudier les machines qui permettent de réaliser une grande économie de main d'œuvre.

La cuisine de West Point est à la fois un laboratoire d'aliments et une fabrique d'aliments. Tout se fait autant que possible à la machine. Le rôti est découpé à la machine: 500 tranches en moins de cinq minutes. Cette machine fait le travail de cinq hommes. Les pommes de terre sont pelées à la machine.

Le pain est pétri, roulé en pains, coupé à l'aide de machines. La crème à la glace se fait à la machine. Le lait est stérilisé à la machine.

La vaisselle est lavée et séchée à la machine. Les couteaux sont nettoyés et aiguisés à la machine et l'argenterie est polie de la même manière. Les portes du réfectoire s'ouvrent automatiquement pour livrer passage aux garçons et se referment de même.

Et 500 paires de mâchoires fonctionnent dans la salle à manger comme si elles étaient, elles aussi, actionnées par des machines. Les jeunes gens entrent et sortent avec la précision de machines.

Songez ce que veut dire la cuisson de 1,000 œufs à la coque à la fois! Imaginez des offices aménagées de telle sorte que chaque article est étiqueté, son prix marqué, de manière qu'à la fin du jour on puisse dire si la nourriture des jeunes gens a coûté, ce jour-là, soixante-trois ou soixante quatre cents par tête.

Imaginez un plancher en carreaux émaillés, qui est frotté au savon et à l'eau trois fois par jour, et une cuisine dont les murs sont constamment lavés et sans la moindre odeur. On trouve tout cela à West Point.

L'établissement possède une machine à fabriquer la glace, une usine à éclairage électrique, des ascenseurs, de vastes glacières capables d'emmagasiner une provision de viande et de fruits pour un mois et une provision be beurre pour près d'un an.

Le capitaine Thomas Frankiin, a la charge du réfectoire à West Point, depuis quatre ans, et c'est à lui que l'on doint ce degré de perfection.

—Comment avez-vous pu faire cela? C'est la première question que lui posent les visiteurs.

—Eh bien! j'ai lu les journaux, réplique-t-il d'ordinaire. Pendant plus de deux ans le capitaine Franklin a étudié les appareills économiques employés dans les cuisines. Il a visité toutes les grandes villes du pays et inspecté toutes les grandes cuisines. Il a lu tout ce qui a été publié ici et à l'étranger sur les machines économiques destinées aux cuisines.

Il avait à résoudre le double problème de fournir de bons aliments et à bas prix. Le gouvernement fournit le réfectoire, le chauffage et l'éclairage à West Point, et les cadets

payent le reste. Ils reçoivent quelque chose comme 51 dollars par mois et ils ont à se nourrir et à se vêtir avec cette somme et, de plus, à mettre 9 dollars 50 de côté par mois.

Le capitaine Franklin a-t-il résolu le problème? "Pour prouver que le pouding existe, il suffit de le manger" dit le proverbe anglais.

Les jeunes cadets de West Point augmentent vite de poids la première année. Au cours des années suivantes ils augmentent encore de poids, mais plus lentement que la precière année. Pendant les trois premiers mois de leur séjour leur poids diminue.

—C'est le moment où nous leur tirons le petit lait, explique le capitaine Franklin.

Quand les cadets se rendent à dîner ils vont à leur place avec précision, et chacun d'eux plie son pardessus et le dépose sur le dossier de sa chaise. Une assiette de soupe se trouve à la place de chacun.

A un certain moment la machine à couper le rôti, quand il y a rôti, se met à fonctionner. Les serviteurs, munis, chacun d'eux, d'un nombre déterminé d'assiettes, se tiennent en rang. La viande est servie sur des assiettes chaudes sortant d'un réchaud.

Les serviteurs, toujours en ligne, reçoivent les légumes sur des plateaux, et avant que la soupe soit finie, le premier homme franchit les portes qui s'ouvrent automatiquement, et les cadets ont devant eux leurs aliments solides.

Quand ils ont fini de manger ils sortent en ordre, et certains réceptacles destinés à recevoir les restes sont apportés. Les restes sont classés, et grâce à l'emploi de machines pour la préparation des aliments, les rebuts ont été réduits de deux charretées par jour à une demi-charretée.

Une des plus intéressantes machines de la cuisine est la peleuse de pommes de terre. Elle consiste en une grande trémie dans laquelle on verse un boisseau de pommes de terre. Au fond et sur les côtés se trouve ce qu'une ménagère pourrait appeler une râpe à muscade. La peau seule de la pomme de terre est enlevée, et cette machine permet de réaliser une économie de 80 pour cent sur le pelage ordinaire. Les yeux sont enlevés à la main. Les pommes de terre brillent comme si elles étaient glacées.

Dans la boulangerie on a adopté toutes les machines utiles que le capitaine Franklin a pu découvrir. On a déterminé par expérience combien de livres de farine et d'eau il faut exactement pour faire une certaine quantité de pain. Les mesures sont préparées, et l'eau et la farine coulent ensemble dans un immense pétrin où tournent des arbres et de gros pétrisseurs en bois qui ressemblent à des massues et qui mélangent l'eau et la farine et pétrissent la pâte.

Celle-ci n'est aucunement touchée par les mains. Une fois achevée, elle est introduite dans une machine à mouler, où se forment les pains et d'où ils passent dans des bassines spéciales. Les pains sont ronds et ont deux pieds de long exactement, ils sont recouverts d'une croute sur tout leur pourtour.

Les jeunes gens aiment la croûte, et la forme des pains est telle qu'il y a moins de perte dans les morceaux non employés que dans tout autre forme. Il y a si peu de perte en réalité que les cuisiniers ont quelquefois de la peine à en trouver assez de reste pour en faire de la mie.

Puis le pain est mis au four. Après chaque cuisson le pain est pesé de manière que la valeur relative des diverses espèces de farines puisse être eprouvée. Le pain est coupé en tranches à la machine un moment avant que les cadets se rendent au réfectoire.

La plupart des hôtels emploient des machines pour fabriquer la crème à la glace, mais ces machines sont d'un ancien modèle où l'on fait usage de sel et de glace pour finir le produit. La machine de West Point emploie la saumure provenant de l'établissement de réfrigération. La crème à la glace est poussée hors de la machine quand un mécanisme spécial annonce qu'elle est gelée, et alors on la moule.

Les autorités de West Point sont tout particulierèment fières de leur matériel pour la stérilisation du lait. Tout le lait employé est acheté à une laiterie établie de l'autre côté de la rivière, laquelle est inspectée régulièrement par le capitaine Franklin. Le lait est d'abord soumis à une température de 180 degrés, puis il passe dans un autre réservoir chauffé à 100 degrés, puis dans un autre d'une température de 34 degrés.

Tout cela se fait en trois minutes, et le lait n'a aucun goût qui puisse faire penser qu'il ait reçu le traitement dont nous venons de parler. Ce qui rend les autorites fières, c'est que pas un seul cas de fièvre typhoïde ou d'autre maladie attribuable au lait de vache ne s'est déclaré dans l'institution depuis l'établissement de cette petite usine à stérilisation.

Les machines à laver la vaisselle se composent de deux parties distinctes: dans l'une les plats sont lavés, dans l'autre ils sont rincés.

Chaque serviteur a un panier en fils de fer pour ses plats. Ces paniers sont soulevés au un réceptacle d'eau de savon, puis dans un réceptacle où de l'eau bouillante tourbillonne sous l'action de petits hélices. La chaleur des assiettes est telle à ce moment qu'elles se sèchent d'elles-mêmes.

Tous les couteaux sont nettoyés et aiguisés à l'aide d'une petite machine actionnée par l'électricité, et l'argent est poli par un appareil à brosse qui fait 3,000 revolutions par minute.

Afin de nourrir les cadets à aussi bas prix que possible toutes les provisions sont achetées en grandes quantités. Les viandes arrivent directement de Chicago par wagons. On achète les provisions d'un mois à la fois.

On achète les épiceries chez des marchands en gros et à aussi bon marché que l'épicier qui vend au détail peut se les procurer lui-même. Les fruits et les légumes sont achetés à New York et à d'autres endroits aux prix de gros seulement.

Le beurre—un article pourtant qui ne s'améliare guère en vieillissant—est acheté en été et l'on s'en approvisionne d'ordinaire pour un an. Il doit être de la meilleure qualité. On n'achète rien qui ne soit de la meilleure qualité; il en résulte que les jeunes gens de West Point sont aussi bien nourris et à aussi bon marché que n'importe qui dans le pays.

Chaque jour le menu des vingt-quatre heures suivantes est écrit sur un tableau noir dans la cuisine, de telle sorte que les aides sachent ce qu'il faut préparer et quels sont les services que l'on attend d'eux. Toutes les horloges de la cuisine ont la même heure exactement, de manière que la nourriture puisse être préparée et servie à l'heure voulue.

Est-ce que les cadets regimbent? Quelquefois. Il n'y a jamais eu un rassemblement de jeunes gens affamés qui n'aient parfois trouvé à redire à la nourriture qu'on leur sert. Le capitaine Franklin est toujours heureux de recevoir des plaintes fondées. Il ne prête aucune attention aux plaintes insignifiantes. La santé des cadets et le peu que leur alimentation leur coûte prouvent la valeur de cette cuisine modèle où les machines occupent une place prépondérante.

Les progrès du monde racontés par les inventions

Un clou ordinaire est un excellent exemple de la différence qui existe entre les méthodes anciennes et les nouvelles. Autrefois le métal était coupé en bandes auxquelles on donnait la forme voulue en les forgeant à coups de marteaux, et il fallait à un expert une minute et demie pour fabriquer un clou. Aujourd'hui les clous se font en acier, ils sont plus légers et plus forts. Les bandes sont coupées par des cisailles actionnées par la vapeur, et introduitess dans les machines à clous automatiques. Un seul homme dirige trois machines et chaque machine donne un clou par seconde.

L'ile de Mai (Grande Bretagne) possède maintenant une sirène d'avertissement qui peut s'entendre à une distance de dix-huit milles. Plusieurs appareils identiques vont être établis dans les phares du voisinage pour sauvegarder les navires qui entrent dans l'estuaire du Forth.

Le professeur Cerebotani, un Français, a perfectionné, dit-on, un appareil qui transmettra par fil toutes les particularités de l'écriture ou du dessin d'un homme, lui permettant de signer des chèques à une distance de 1,000 milles, d'écrire un document légal ou de dessiner un tableau. Il suffit d'un seul fil et le mécanisme est fort simple. Un mouvement d'horlogerie commande un fil, une tige fait un mouvement circulaire tandis qu'une autre est chargée des mouvements perpendiculaires et horizontaux.

Sur la main d'un homme qui avait perdu par accident le doigt du milieu, le professeur von Eifelsberg, de Vienne, a réussi à greffer un des orteils de cet homme, et l'on croit que celui-ci pourra bientôt se servir de cet orteil comme d'un doigt.

Le professeur Classen, d'Aix-la-Chapelle, a inventé un procédé qui permet de faire de l'alcool avec de la sciure de bois. La cellulose est traitée par l'acide sulfurique gaseux, il se forme du glucose qui se transforme en alcool par fermentation. Une tonne de sciure donne environ deux cents litres d'alcool brut ou 100 litres d'alcool absolu. On espère toutefois pouvoir bientôt obtenir cent vingt litres d'alcool absolu par tonne, ou même davantage.

Un nouveau type de locomotive, connu sous le nom de modèle à "monkey motion" (mouvement de singe), lequel, dit-on, revolutionnera la locomotion à vapeur sur les chemins de fer, a été employé avec succès sur la ligne du Southern Pacific. Un train de 1,500 tonnes a été tiré d'Ogden à Wadsworth (état de Nevada), par une des nouvelles machines. Tout le mécanisme moteur est sur les côtés, et, par suite, d'un accès facile. La vapeur s'épuise très rapidement et il n'y a pas de pression de retour. On estime que la nouvelle machine permettra de réaliser une économie de 25 à 40 pour cent sur le charbon, car il lui suffit d'une tonne de charbon pour parcourir cinquante-quatre milles, tandis que les modèles actuels demandent la même quantité pour parcourir de vingt-cinq à vingt-huit milles.

Si l'on en croit une publication allemande, la Suède se propose d'utiliser pour la production de l'électricité la moindre goutte d'eau de ses rivières et de ses chutes qui ne sert aujourd'hui à rien. Des ingénieurs sont dans les collines, occupés à faire des plans et l'on amasse des capitaux pour l'exécution des projets aussitôt que ceux-ci seront terminés. On peut dire la même chose de la Norvège, où les eaux parcourent de moins grandes distances, mais sont souvent d'un volume extraordinaire. En Suède, l'énergie produite servira à actionner les machines de manufactures de tous genres; en Norvège, on l'utilisera dans les mines de fer et de cuivre.

Des géographes, représentant les principales nations, sont en train de préparer une carte du monde entier à l'échelle de 1-1,000,000 et le professeur Penck, le géographe allemand, annonce que soixante-neuf feuilles sur 437 que comporte le projet ont été achevées. La distance d'un mille sera représentée par une longueur d'environ un seizième de pouce (à peu près deux millimètres). Il y a, cela va sans dire, beaucoup de cartes de portions de la terre peu étendues, qui sont à une plus grande échelle que celle-ci, mais, toutefois, représenter tout le monde connu à cette échelle est une entreprise d'un intérêt considérable.

Un des journaux de Berlin parle d'un instrument nouveau utilisé pour la pêche des harengs. Un inventeur allemand place un microphone dans une boite métallique parfaitement étanche, et le plonge dans la mer pour découvrir si les poissons passent par là. Un fil réunit le microphone submergé (cet appareil, comme on sait, augmente considérablement le volume des faibles sons) à un recepteur ordinaire, avec lequel on écoute ce qui se passe dans les profondeurs de la mer. Des résultats excellents ont été obtenus dans la Mer du Nord où l'appareil a signalé le passage de bancs de harengs.

Un grand pont

Le nouveau pont de chemin de fer jeté sur le Fleuve Jaune, en Chine, est l'un des plus grands et des plus remarquables du monde entier. Il a un mille et sept huitièmes de longueur, et est entièrement composé d'acier, sans la moindre trace de maçonnerie; ce fait est établi par le rapport de M. Crist, agent consulaire spécial. Il repose sur des tubes d'acier enfoncés dans le lit du fleuve et supportant une série d'arches d'une longueur qui varie entre support consistent en un groupe de huit tubes d'acier enfoncés jusqu'à 55 pieds dans le lit du fleuve. Les difficultés rencontrées par les ingénieurs étaient tout particulièrement grandes parce que le courant du fleuve varie non seulement avec la saison, mais encore d'un jour à l'autre. Il arrive que là où il y a un lit de sable aujourd'hui il y a trois pieds d'eau demain. Les plus forts courants ont lieu en août et en septembre.

Théorie et progrès

Les prophètes pessimistes font quelquefois l'effet d'esprits sages et logiques, mais l'optimiste qui ne raisonne pas et qui voit toujours les choses en rose en dépit des arguments, les devance toujours. A l'époque des premières expériences de Stephenson, il fut prédit qu'une vitesse de plus de douze milles à l'heure sur rails serait impossible, et l'une des raisons que l'on donnait entre autres c'est que l'organisme humain ne saurait supporter une plus grande vitesse. Au début des bateaux à vapeur on déclarait que la navigation transatlantique par bateaux à vapeur serait impossible, surtout parce qu'on ne saurait emmagasiner dans un navire assez de charbon pour faire la traversée. Le prophète finissait à peine de parler qu'on recevait la nouvelle qu'un navire venait de franchir l'Atlantique à l'aide de la vapeur seule. Il en fut de même avec les câbles transatlantiques. D'aucuns croyaient qu'on ne pourrait jamais les poser parce que la densité de l'eau, à une certaine profondeur, serait si grande que le câble refuserait d'atteindre le fond de l'océan. Mais en dépit de la science de ces sages, le câble descendit promptement jusqu'au lit même de l'océan, à une profondeur de 16,404 pieds, et l'année dernière on a posé dans l'Océan Pacifique un câble qui, dans le voisinage des iles Lunkin, descend à une profondeur de 26,246 pieds.

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En el Directorio para Compradores, en la primera parte, hallarán nuestros lectores los informes en el idioma español, a fin de que puedan entablas una correspondencia más satisfactoria con nuestros anunciantes.

Los fabricantes de instrumentos agrícolas americanos no esperan que los compradores de otros países les compren sus productos por simpatía. Lo que deseamos es llamar sobre nuestros productos la atención de los compradores extranjeros para que examinen imparcialmente sus méritos. La superior calidad y los módicos precious son los factores del notable aumento de nuestra exportación de aperos de labranza y maquinaria agrícola.

La Estadistica de la Inmigracion

El número total de extranjeros que pasaron por la estación ó depósito de inmigrados de la isla Ellis, Nueva York, durante el año que terminó el 30 de Junio de 1906, se elevó á 935,915, un aumnto de más de 100,000 comparado con el año de 1905. De los inmigrados 697,000 son hombres y 272,000 mujeres. Incluyendo los que llegaron á esa isla y no fueron admitidos en los Estados Unidos, la inmigración de extranjeros llegó este año á más de un millón de almas.

De ese total sólo 38,290 pasaban de 44 años de edad. Unos 100,000 habían estado antes en los Estados Unidos. Trajeron consigo en conjunto unos $19,000,000. Por varias causas 7,877 fueron deportados, incluyendo 195 criminales, 119 dementes, y otros por padecer de varias enfermedades contagiosas. Los más numerosos eran los italianos, 254,238. Sguíanles los rusos con 163,316. Luégo Hungria nos envió 128,247. Austria 96,696,625; La Gran Bretaña é Irlanda 71,000; y los Paises Escandinavos 33,000. De los que llegaron en el mes de Junio solamente, 45,433 vinieron á residir en Nueva York, y 15,793 en el Estado de Pennsylvania. El mayor número de los que vinieron á otros Estados en el mes de Junio fué 6,531, á Illinois y 5,971 á New Jersey.

Los esfuerzos hechos para obtener inmigrantes que fuesen á los Estados del Sur no tuvieron el mejor éxito. Sólo 7 fueron á Arkansas, 63 á Georgia, 24 á Mississippi, 23 á la Carolina del Norte, 23 á la Carolina del Sur, 85 á Texas, y en esta proporción á los demás Estados del Sur. La Virginia Occidental, á donde fueron 819 inmigrantes en Junio, recibió el mayor número, incluyendo á Maryland, que recibió 536 de los que desembarcaron en Nueva York.

Un Sistema Modelo

Los adelantos modernos le deben mucho á un buen sistema, que no es otra cosa que la metódica organización de la vida industrial y comercial y en cualquiera esfera de la actividad del hombre. Cuando se lleva á cabo una tarea de vastas proporciones con facilidad y eficiencia, por un sistema bien elaborado, es interesante notar la sencillez de la operación en que se basa. De un número reciente de la *Chicago Tribune* tomamos la siguiente relación de un sistema en operación seguido en la Academia Militar de los Estados Unidos, en West Point, N. Y.

Haced marchar al comedor á unos 500 jóvenes americanos, cada uno tan hambriento como el hijo de un labrador; dadles solamente unos cuarenta minutos para hacer su comida, con un mozo solamente para servir á cada veinte muchachos, y en pocos minutos tendréis que lidiar con un motín.

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Les progrès du monde racontés par les inventions

Un clou ordinaire est un excellent exemple de la différence qui existe entre les méthodes anciennes et les nouvelles. Autrefois le métal était coupé en bandes auxquelles on donnait la forme voulue en les forgeant à coups de marteaux, et il fallait à un expert une minute et demie pour fabriquer un clou. Aujourd'hui les clous se font en acier, ils sont plus légers et plus forts. Les bandes sont coupées par des cisailles actionnées par la vapeur, et introduitess dans les machines à clous automatiques. Un seul homme dirige trois machines et chaque machine donne un clou par seconde.

L'île de Mai (Grande Bretagne) possède maintenant une sirène d'avertissement qui peut s'entendre à une distance de dix-huit milles. Plusieurs appareils identiques vont être établis dans les phares du voisinage pour sauvegarder les navires qui entrent dans l'estuaire du Forth.

Le professeur Cerebotani, un Français, a perfectionné, dit-on, un appareil qui transmettra par fil toutes les particularités de l'écriture on du dessin d'un homme, lui permettant de signer des chèques à une distance de 1,000 milles, d'écrire un document légal ou de dessiner un tableau. Il suffit d'un seul fil et le mécanisme est fort simple. Un mouvement d'horlogerie commande un fil, une tige fait un mouvement circulaire tandis qu'une autre est chargée des mouvements perpendiculaires et horizontaux.

Sur la main d'un homme qui avait perdu par accident le doigt du milieu, le professeur von Eifelsberg, de Vienne, a réussi à greffer un des orteils de cet homme, et l'on croit que celui-ci pourra bientôt se servir de cet orteil comme d'un doigt.

Le professeur Classen, d'Aix-la-Chapelle, a inventé un procédé qui permet de faire de l'alcool avec de la sciure de bois. La cellulose est traitée par l'acide sulfurique gaseux, il se forme du glucose qui se transforme en alcool par fermentation. Une tonne de sciure donne environ deux cents litres d'alcool brut ou 100 litres d'alcool absolu. On espère toutefois pouvoir bientôt obtenir cent vingt litres d'alcool absolu par tonne, ou même davantage.

Un nouveau type de locomotive, connu sous le nom de modèle à "monkey motion" (mouvement de singe), lequel, dit-on, revolutionnera la locomotion à vapeur sur les chemins de fer, a été employé avec succès sur la ligne du Southern Pacific. Un train de 1,500 tonnes a été tiré d'Ogden à Wadsworth (état de Nevada), par une des nouvelles machines. Tout le mécanisme moteur est sur les côtés, et, par suite, d'un accès facile. La vapeur s'épuise très rapidement et il n'y a pas de pression de retour. On estime que la nouvelle machine permettra de réaliser une économie de 25 à 40 pour cent sur le charbon, car il lui suffit d'une tonne de charbon pour parcourir cinquante-quatre milles, tandis que les modèles actuels demandent la même quantité pour parcourir de vingt-cinq à vingt-huit milles.

Si l'on en croit une publication allemande, la Suède se propose d'utiliser pour la production de l'électricité la moindre goutte d'eau de ses rivières et de ses chutes qui ne sert aujourd'hui à rien. Des ingénieurs sont dans les collines, occupés à faire des plans et l'on amasse des capitaux pour l'exécution des projets aussitôt que ceux-ci seront terminés. On peut dire la même chose de la Norvège, où les eaux parcourent de moins grandes distances, mais sont souvent d'un volume extraordinaire. En Suède, l'énergie produite servira à actionner les machines de manufactures de tous genres; en Norvège, on l'utilisera dans les mines de fer et de cuivre.

Des géographes, représentant les principales nations, sont en train de préparer une carte du monde entier à l'échelle de 1-1,000,000 et le professeur Penck, le géographe allemand, annonce que soixante-neuf feuilles sur 437 que comporte le projet ont été achevées. La distance d'un mille sera représentée par une longueur d'environ un seizième de pouce (à peu près deux millimètres). Il y a, cela va sans dire, beaucoup de cartes de portions de la terre peu étendues, qui sont à une plus grande échelle que celle-ci, mais, toutefois, représenter tout le monde connu à cette échelle est une entreprise d'un intérêt considérable.

Un des journaux de Berlin parle d'un instrument nouveau utilisé pour la pêche des harengs. Un inventeur allemand place un microphone dans une boîte métallique parfaitement étanche, et le plonge dans la mer pour découvrir si les poissons passent par là. Un fil réunit le microphone submergé (cet appareil, comme on sait, augmente considérablement le volume des faibles sons) à un recepteur ordinaire, avec lequel on écoute ce qui se passe dans les profondeurs de la mer. Des résultats excellents ont été obtenus dans la Mer du Nord où l'appareil a signalé le passage de bancs de harengs.

Un grand pont

Le nouveau pont de chemin de fer jeté sur le Fleuve Jaune, en Chine, est l'un des plus grands et des plus remarquables du monde entier. Il a un mille et sept huitièmes de longueur, et est entièrement composé d'acier, sans la moindre trace de maçonnerie; ce fait est établi par le rapport de M. Crist, agent consulaire spécial. Il repose sur des tubes d'acier enfoncés dans le lit du fleuve et supportant une série d'arches d'une longueur qui varie entre support consistent en un groupe de huit tubes d'acier enfoncés jusqu'à 55 pieds dans le lit du fleuve. Les difficultés rencontrées par les ingénieurs étaient tout particulièrement grandes parce que le courant du fleuve varie non seulement avec la saison, mais encore d'un jour à l'autre. Il arrive que là où il y a un lit de sable aujourd'hui il y a trois pieds d'eau demain. Les plus forts courants ont lieu en août et en septembre.

Théorie et progrès

Les prophètes pessimistes font quelquefois l'effet d'esprits sages et logiques, mais l'optimiste qui ne raisonne pas et qui voit toujours les choses en rose en dépit des arguments, les devance toujours. A l'époque des premières expériences de Stephenson, il fut prédit qu'une vitesse de plus de douze milles à l'heure sur rails serait impossible, et l'une des raisons que l'on donnait entre autres c'est que l'organisme humain ne saurait supporter une plus grande vitesse. Au début des bateaux à vapeur on déclarait que la navigation transatlantique par bateaux à vapeur serait impossible, surtout parce qu'on ne saurait emmagasiner dans un navire assez de charbon pour faire la traversée. Le prophète finissait à peine de parler qu'on recevait la nouvelle qu'un navire venait de franchir l'Atlantique à l'aide de la vapeur seule. Il en fut de même avec les câbles transatlantiques. D'aucuns croyaient qu'on ne pourrait jamais les poser parce que la densité de l'eau, à une certaine profondeur, serait si grande que le câble refuserait d'atteindre le fond de l'océan. Mais en dépit de la science de ces sages, le câble descendit promptement jusqu'au lit même de l'océan, à une profondeur de 16,404 pieds, et l'année dernière on a posé dans l'Océan Pacifique un câble qui, dans le voisinage des îles Lunkin, descend à une profondeur de 26,246 pieds.

EXPORT IMPLEMENT AGE

PARA CIRCULAR EN EL EXTRANJERO SOLAMENTE.

Periódico independiente, dedicado exclusivamente al fomento del comercio de exportación en maquinaria para la Agricultura y lécherias, bombas, molinos de viento, aperos de labranza y suministros á cortijos, haciendas, ingenios de hacer azúcar, sitios de labor etc.

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En el Directorio para Compradores, en la primera parte, hallarán nuestros lectores los informes en el idioma español, a fin de que puedan entablas una correspondencia más satisfactoria con nuestros anunciantes.

Los fabricantes de instrumentos agricolas americanos no esperan que los compradores de otros paises les compren sus productos por simpatía. Lo que deseamos es llamar sobre nuestros productos la atención de los compradores extranjeros para que examinen imparcialmente sus méritos. La superior calidad y los módicos precious son los factores del notable aumento de nuestra exportación de aperos de labranza y maquinaria agrícola.

La Estadistica de la Inmigracion

El número total de extranjeros que pasaron por la estación ó depósito de inmigrados de la isla Ellis, Nueva York, durante el año que terminó el 30 de Junio de 1906, se elevó á 935,915, un aumnto de más de 100,000 comparado con el año de 1905. De los inmigrados 697,000 son hombres y 272,000 mujeres. Incluyendo los que llegaron á esa isla y no fueron admitidos en los Estados Unidos, la inmigración de extranjeros llegó este año á más de un millón de almas.

De ese total sólo 38,290 pasaban de 44 años de edad. Unos 100,000 habían estado antes en los Estados Unidos. Trajeron consigo en conjunto unos $19,000,000. Por varias causas 7,877 fueron deportados, incluyendo 195 criminales, 119 dementes, y otros por padecer de varias enfermedades contagiosas. Los más numerosos eran los italianos, 254,238. Sguianles los rusos con 163,316. Luégo Hungria nos envió 128,247. Austria 96,696,625; La Gran Bretaña é Irlanda 71,000; y los Países Escandinavos 33,000. De los que llegaron en el mes de Junio solamente, 45,433 vinieron á residir en Nueva York, y 15,793 en el Estado de Pennsylvania. El mayor número de los que vinieron á otros Estados en el mes de Junio fué 6,531, á Illinois y 5,971 á New Jersey.

Los esfuerzos hechos para obtener inmigrantes que fuesen á los Estados del Sur no tuvieron el mejor éxito. Sólo 7 fueron á Arkansas, 63 á Georgia, 24 á Mississippi, 23 á la Carolina del Norte, 23 á la Carolina del Sur, 85 á Texas, y en esta proporción á los demás Estados del Sur. La Virginia Occidental, á donde fueron 819 inmigrantes en Junio, recibió el mayor número, incluyendo á Maryland, que recibió 536 de los que desembarcaron en Nueva York.

Un Sistema Modelo

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INTENTIONAL SECOND EXPOSURE

"Como? Yo leo los periódicos," es la contestación usual.

Por dos años estuvo el Capitán Franklin estudiando todos los instrumentos, aparatos y métodos economizadores de trabajo de una cocina. Fue a todas las grandes ciudades del pais á examinar sus mejores cocinas. Estudió todas las máquinas y utensilios de cocina economizadores de trabajo, tanto del pais como del extranjero.

Tuvo que confrontar y resolver el problema, no solo de suministrar buena comida, sino tambien de no aumentar el costo. El gobierno provee el comedor con todos su mobiliario, bajillas, etc. la calefacción y el alumbrado, de West Point, y los cadetes pagan el resto. Estos reciben del Gobierno un sueldo de unos $51 al mes, y con este sueldo tienen que mantenerse y vestirse y ahorrar $9.50 al mes.

¿Ha resuelto el problema el Capitán Franklin? La prueba de la afirmativa está patente.

Los cadetes de West Point ganan rapidamente en peso el primer año. En los años siguientes continúa amentando algo su peso, pero con más lentitud. Durante los tres primeros meses de su estadia, en vez de ganar, pierden algún peso.

Cuando los cadetes entran marchando en el salón-comedor van con precisión a sus respectivos lugares, y antes de sentarse cada uno se quita el capotón ó sobretodo y lo cuelga en el espaldar de su silla, y cada uno halla un plato de sopa caliente delante de su puesto.

En un momento dado los trinchadores de la carne asada, si la hay ese dia, empiezan à cortar la carne. Los mozos de servicio, están en linea, cada uno con su número de platos. La carne se hecha momentaneamente en los platos, acabados de tomar del calentador.

Los mozos, todavía en fila, reciben en bandejas las legumbres ó articulos vegetales, y antes de acabarse de tomar la sopa, aparece el primer mozo por las diferentes puertas, las cuales se abren automáticamente, y los cadetes reciben en un momento su alimento sólido, y luégo sus postres.

Cuando acaban de comer salen del salón-comedor marchando con la misma regularidad militar, y ciertos receptáculos reciben los mendrugos y otras sobras de la comida. Estas se clasifican, y por medio de maquinaria se ha reducido el desperdicio de dos carretonadas á media carretonada al dia.

Una de las máquinas más interesantes de la cocina es la peladora de patatas, la cual se compone de una tolva en la que se echa un "bushel" de patatas. El fondo y los lados interiores están revestidos de guallos que rallan y descortezan las patatas, con una economia del 80 por ciento que se pierde pelándolas por el método corriente. Las yemas se les quita á mano, y el fruto sale tan reluciente como si estuvies cubierto con escarcha.

En el taller de panaderia se han adoptado todos los métodos y utensilios útiles que ha podido hallar el Capitán Franklin. Experimentalmente se ha determinado cuantas libras de harina y de agua se necesitan para hacer cierta hornada de pan. Se deja correr la harina juto con el agua en una gran artesa de amasar, donde un eje gigratorio provisto de amasadores de madera mezclan y hacen el amasijo.

No lo toca ninguna mano. Luégo pasa la másа á una máquina de moldear, que forma las hogazas, y estas caen en las cazuelas de hornear. Las hogazas tienen exactamente dos piés de largo y son redondas, saliendo con toda la superficie tostada.

A los muchachos les gusta la costra tostada del pan y la forma de la hogaza es tal y tan poco se desperdicia que á menudo no tienen los cocineros suficiente pedazos de pan para hacer migas.

Luégo se mete el pan en el horno, y cada hornada se pesa después para descubrir el valor relativo de la harina de diferentes marcas. El pan se rebana con maquinaria inmediatamente antes de sentarse á la mesa los cadetes.

La mayor parte de los hoteles usan máquina para hacer sus helados, pero por el antiguo método, usando sal para obtener el producto. En West Point se usa la salmuera del cuarto refrigerador. El helado se saca cuando un indicador automático avisa que ya está listo y se echa en los moldes.

Las autoridades de West Point se enorgullecen de su arreglo para esterilizar la leche. Toda leche usada se le compra á una lecheria situada al otro lado del rio Hudson, y es inspeccionada con regularidad por el Capitán Franklin. Luégo se somete á una temperatura de 180 grados; después se pasa á un tanque calentado á 100 grados, y de ahi á otro enfriado hasta 34 grados Fahr.

Todo esto se hace en tres minutos, y el sabor de la leche no da la más ligera indicación del tratamiento que ha recibido. De lo que se enorgullecen las autoridades es de que no se ha presentado un solo caso de tifoidea ú otra enfermedad que pueda atribuirse al uso de la leche desde que se empezó á esterilizarla.

Las máquinas de lavar los platos se componen de dos partes: en una se lavan los platos, y en la otra se enjuagan.

Cada mozo de servicio tiene un huacal de alambre para poner sus platos. Estos huacales, llenos de platos, se suspenden por medio de una grúa, y luégo se meten en un gran receptáculo lleno de agua y jabón; después en otro receptáculo donde reciben un continuado torrente de agua hirviendo batida por propulsores, calentando la losa hasta tal punto, que al sacarlos pronto se secan.

Todos los cuchillos se limpian y amuelan con una maquinita eléctrica, y los tenedores y cucharas de plata se limpian y pulimentan en un aparato provisto de un escobillón que gira á razón de 3,000 revoluciones por minuto.

Para dar de comer á los cadetes al menor costo posible para ellos, todos los comestibles se compran por mayor y en grandes cantidades. La carne se compra en suficiente cantidad para el consumo de un mes

Los demás viveres se les compra á los comerciantes por mayor. Las frutas y legumbres se compran en Nueva York, y otros lugares.

La mantequilla se compra en el verano y usualmente la suficiente para el consumo de un año, y ha de ser de la mejor calidad obtenible. No se compra nada que no sea de primera calidad, y el resultado es que los muchachos de West Point son alimentados tan bien y á tan poco costo como las personas acomodadas del pais.

Todos los dias el "menu" ó lista de platos se escribe en una gran pizarra en la cocina, para que los cocineros sepan que platos han de preparar ese día, y qué servicio se espera de los mozos. Todos los relojes de la cocina están arreglados cronométricamente para que no haya la menor dilación en el cocinar y el servir la comida.

"¿Se quejan los muchachos?" Algunas prueban el valor de su sistema culinario mozalvetes con aguzados apetitos que no se quejen á veces de la comida que se les pone delante, y el Capitán Franklin siempre se alegra de oir las quejas bien fundadas; a las quejas infundadas poco caso les hace. La robusta salud de los cadetes, y lo poco que les cuesta prueban el valor de su sistema culinario modelo.

La Procreación Científica de las Plantas

El Instituto de Carnegie en Washington, D. C., ha hecho arreglos para costear por cierto número de años los experimentos de Mr. Luther Burbank, de Santa Rosa, California, quien ha llegado á ser conocido universamente por el nombre del Brujo de la Horticultura." Una comisión compesta del presidente y algunos de los directores del Instituto se ha organizado con el objeto de emprender un análisis científico de los maravillosos resultados en la procreación de plantas obtenidos por Mr. Burbank.

La comisión la constituyen R. S. Woodward, presidente, y los Doctores C. B. Davenport y D. T. MacDougal. Esa comisión fué recientemente á Santa Rosa, donde celebró una conferencia con Mr. Burbank relativa al objeto. Sus trabajos se proseguirán sin ninguna interrupción de la serie de experimentos sobre la procreación de plantas, algunos de los cuales hace de veinte á treinta años que está haciendo Mr. Burbank.

Varios miembros del personal cientifico del Instituto vivirán en la residencia de Mr. Burbank y harán un detenido estudio de sus plantas más notables. Se ha emprendido este trabajo con el fin de adquirir conocimientos obre la transmisión hereditaria y la evolución.

Hace varios años que el Dr. MacDougal ha estado haciendo una serie de experimentos sobre este asunto en el Jardin Botánico de Nueva York, con resultados que en gran manera confirman la teoria dada al mundo hace tres años por el Dr. Hugo de Vries, de Amsterdan, que nuevas especies se desarrollan inmediatamente á menudo descendidas de la planta progenitora, en vez de ser siempre el fruto de largos años y una multiplicidad de ligeros cambios, como creia Darwin.

El Dr. Davenport, de la Comisión ha sido también un estudiante igualmente entusiástico de los problemas de la evolución, y es Director del Laboratorio Evolucionario de Carnegie, en Cold Spring Harbor. El Dr. MacDougal es Director de los trabajos botánicos del Instituto de Carnegie.

Entre otros problemas ocupará la atención de los investigadores en Santa Rosa la anatomía microscópica de las plantas híbridas.

Comparativamente pocos sistemáticos conocimientos se tienen sobre el modo de combinarse los elementos de dos plantas desiguales en las híbridas, y la Comisión espera obtener importantes resultados en este particular.

Incidentalmente la Comisión informa que los magnificos trabajos de Mr. Burbank han sido erroneamente representados al público por algunos escritores de periódico, autores de libros y seudo-científicos, mientras que algunas de las más sencillas operaciones ha logrado Mr. Burbank realizar el mejoramiento de frutas y verduras han sido exageradas de un modo sensacional, y muy perjudicial á la reputación de Mr. Burbank, y se le han atribuido maravillas que no ha realizado ni reclama él.

Como ejemplo se cita el cacto ó tuna sin espina, al cual se le han atribuido maravillosas propiedades. Se ha descrito esa planta como producida por Mr. Burbank, mientras que el hecho es, según dice la Comisión, que Mr. Burbank, al cruzar un cacto naturalmente sin espinas con uno espinoso, en un esfuerzo para producir un cacto sin espinas ó pùas y desarrollar otras propiedades del cacto híbrido valioso como forraje ó por su fruta.

Mucho se ha adelantado en esta linea de experimentos, pero los resultados esperados están lejos de haberse realizado.

La gran práctica, la paciencia y el vivo entusiasmo por esta clase de trabajos, por otra parte, han dado por resultado triunfos que colocan á Mr. Burbank á la cabeza de los principales procreadores de plantas de América. El trabaja con penetrante intuición, y puede predecir el probable valor de sus híbridas examinándolas al semillar.

Un estudio en detalle de los productos del plantío de Mr. Burbank se llevará á cabo por el Dr. George H. Shull, de la Estación Experimental de Cold Spring Harbor, y el Dr. W. A. Cannon, del Laboratorio Botánico de Desierto, de Tucson, Arizona.

Todos los trabajadores interesados y la Comisión han convenido en celebrar pronto una reunión para madurar sus planes y hacer provisión para continuar los trabajos en el porvenir.

El Abasto de Trigo del Mundo

Curiosa parece ser la idea de que la supremacia de la civilización de las naciones occidentales—la ascendencia de los comedores de harina de trigo sobre los comedores de arroz—dependerá últimamente del descubrimiento de un procedimiento barato para la producción de los nitratos; pero tal es la aserción de una autoridad tan eminente como la de Sir William Ramsay.

Hace más de cinco años que Sir William Crookes declaró que la población del mundo está creciendo tan rápidamente, que dentro de poco será insuficiente el abasto de trigo. Desde entonces se ha adelantado algo con varios experimentos tendentes á aumentar las cosechas de trigo del mundo. Sin embargo, muchos hombres cientificos creen que una gran carestia de trigo dentro de unas pocas generaciones es una posibilidad.

Los esfuerzos para impedir o postponer semejante ocurrencia se dirigen: Primero, hacia la extensión de las areas de tierra sembradas—un procedimiento que tiene sus limites—en segundo lugar, á aumentar el rendimiento de cada "acre," y eligiendo la más adecuada para cada localidad donde se siembra: en tercer lugar, hacia aumentar las cosechas, alimentando las plantas más generosamente con nitrógeno, y alternándolas con plantas leguminosas de undillos, procedimiento que ha desarrollado el Departamento de Agricultura del Gobierno de los Estados Unidos; y en cuarto lugar manufacturando los nitratos.

Por muchos años Chile nos ha estado abasteciendo de nitratos: está casi agotada. Las cloacas de las ciudades podrian suministrarnos enormes cantidades de nitratos, si se pudiese descubrir un método de recogerlo sin poner en peligro la salud pública. Se calcula que en Inglaterra solamente se desperdicia en los albañales por valor de ochenta millones de pesos de fertilizador.

La manufactura artificial, ó más bien, la fijación del nitrógeno parece ser la gran fuente de abastecimiento. Pero los procedimientos hoy usados son complicados y costosos. Muchas patentes se han obtenido. Una de las últimas manufacturas de nitratos es la de Svaelgfoss, Noruega, donde se utiliza una cascada de treinta mil caballos de fuerza para generar la electricidad que toma el nitrógeno del aire atmosférico, siendo después absorbido por la cal el nitrógeno ó azoe. El nitrato de calcio que resulta es un poderoso fertilizador.

Los quimicos y electricistas jóvenes de nuestros días tienen en este asunto un arduo problema que resolver, y el que consiga resolverlo deberá quedar tan satisfecho como el más ambicioso.

Beneficios de la Competencia

El espíritu de competencia entre los fabricantes de instrumentos agrícolas americanos es tan acérrima, que los compradores de sus productos reciben el beneficio, no sólo de obtener-los á precios módicos, sino también el de obtener instrumentos de excelente calidad. Las fábricas están continuamente mejorando sus habilitaciones y facilidades, y reduciendo el costo de producción por todos los medios posibles. Al mismo tiempo sus expertos mecánicos trabajan asiduamente sin cesar en todos los departamentos inventando mejoras en la maquinaria para hacerla más atractiva, duradera y eficiente. La competición en el comercio de exportación es tambien muy activa, y se considera de gran importancia el recibir pedidos de los países extranjeros.

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No es un secreto que la prosperidad de la isla de Trinidad depende principalmente de la industria azucarera. El cacao ha usurpado el primer lugar entre los productos agrícolas de la isla; pero la producción del azúcar y el creciente aumento del cultivo de la caña emplea un número de trajadores muchísimo mayor que el cultivo del cacao, y es un hecho evidente que la pérdida de la industria azucarera perjudicaría seriamente á la verdad la situación económica del país.

De tiempo en tiempo se les ha incitado á los hacendados á que usen el arado al vapor en las grandes haciendas del norte, para disminuir asi el costo de producción. El porvenir de la industria azucarera depende absolutamente de la reducción á su mínimo de semejante costo, y afortunadamente se ha evidenciado esto por la introducción del uso del arado al vapor y otros instrumentos economizadores de trabajo donde quiera que ha sido practicable hacerlo asi.

Los precios del azúcar reinantes en Inglaterra este año han sido tan bajos, que muchos de los ingenios no han tenido utilidad. Sin embargo, con el uso en aumento del arado al vapor y otra maquinaria moderna se reducirá materialmente el costo de producción en el porvenir.—*N. Y. Commercial.*

EXPORT IMPLEMENT AGE

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Im Firmenverzeichnis für Käufer das im ersten Theil dieses Blattes wiedergegeben ist, werden unsere geehrten Leser die betreffenden Waarenartikel in deutscher Sprache wiedergegeben finden. Es geschieht dies um ihnen die Möglichkeit zu geben, mit unseren Inserenten leichter korrespondiren zu können.

Fabrikanten amerikanischer Gräthe deren Reklame in dieser Zeitschrift zu finden sind, sind in der Lage Korrespondenz in jeder auswärtigen Sprache zu hantiren. Unseren geschätzten Lesern ist es daher anheimgestellt, an unsere Inserenten in der ihnen konvenirendsten Sprache zu adressiren.

Das Arbeitsproblem ist seit Jahren bereits eine heikle Frage in Amerika. Der Mangel an Landarbeit ist in einem grossen Masse verantwortlich für die Verschiedenheit und die Hervorragenheit unserer landwirthschaftlichen Geräthe. "Nothwendigkeit ist die Mutter der Erfindung," es ist daher nur die Anwendung arbeitsparender Maschinerien die es den amerikanischen Landwirthen ermöglichen ihre Produkte zu ziehen und erfolgreich zu ernten.

Viele unserer amerikanischen Fabrikanten sind derart beschäftigt, den eigenen inländischen Markt befriedigen zu können, dass sie den Märkten anderer Länder bisher keine Aufmerksamkeit haben schenken können. Unsere hervorragendsten Fabrikanten kennen jedoch die ungeheuren Möglichkeiten die die auswärtigen Märkte ihnen bieten und haben in Folge dessen heute regelrechte Export-Abtheilungen eröffnet, wo allen auswärtigen Geschäften die sorgfältigste Aufmerksamkeit geschenkt wird. Die Inserenten des "*Export Implement Age*" gehören zu eben dieser Klasse Fabrikanten und dürften unsere geschätzten ausländischen Leser somit finden, dass jede einzelne Firma prompt und zuvorkommend in ihrer Geschäftstransaktion arbeitet.

Gar oft sehen sich amerikanische Geräthe-Fabrikanten genöthigt, ihre Establissements durch die Errichtung weiterer Fabrikationsbauten zu vergrössern. Das steigende Verlangen nach Geräthen, zu Hause als auch drüben, ist aber so enorm, dass die Leistungsfähigkeit aller unserer Fabriken bis auf's äusserste in Anspruch genommen ist. Während der letzten paar Monate haben viele unserer grössten Fabrikanten Tag und Nacht arbeiten nüssen, um das wachsende Verlangen ihrer Kunden bewerkstelligen zu können. In den letzten paar Jahren sind so viele neue Gebäude errichtet worden, dass mit Wahrheit behauptet werden darf: älle unsere Fabriken sind neu und in jeder Weise modern." Jede nur denkbar verbesserte Einrichtung ist zur Anwendung gebracht worden und wird Maschinerie solcher Konstruktion angewandt, die die Arbeitskraft vieler Arbeiter verringert.

Eisen gegen Stahl

Während des letzten Jahrzehntes des soeben verflossenen Jahrhunderts hat das Steigen der Preise in der Fabrikation von Stahl, und gleichzeitig auch das für diesen Zweck angewandte Ersatzmittel, das hierzuvor nur für Schmiedeeisen gebraucht wurde, den aufmerksamen Beobachter Anlass zum Glauben gegeben, dass letzteres bald einen minderwichtigen Theil in der Metallurgie spielen werde. Viele der bedeutendsten Firmen der Industrie, und Carneggie sogar miteingeschlossen, haben sich augenblicklich von der Puddelfabrikation total zurückgezogen. Woirgend möglich ist Eisen durch Stahl verdrängt worden; ja es wurde sogar berichtet, dass ein Substitut von gutgestaltetem Metall, gleichen Ursprungs wie Schmiedeeisen, das oft vielfache Risse hat, ein weiser Schritt in vortrefflicher Richtung sein werde. Doch haben die ersten Jahre des zwanzigsten Jahrhunderts bereits eine bestimmte Richtung zu Gunsten des Schmiedeeisens hervorgerufen. Eine reiche Erfahrung lehrt, dass Stahl für Konstruktionszwecke sich bei Weitem nicht so gut erweist, als es erwartet wurde. Eisennägel wurden vom Markte vollständig durch Drahtstahlnägel verdrängt; viele Kaufkonsumenten haben Grund zur Beschwerde darin gefunden, dass letztere sich zwar leicht biegen. Auch wurde konstatirt, dass Gebäude, die mit Stahlnägeln errichtet werden, nicht so gut vorhalten, weil die Nägel leicht unterhalb am Kopfende verrosten. Für Gerüste und dergleichen z. B. hat der Stahlnagel weniger Haltkraft als der Eisennagel und ist somit ein wachsender Bedarf für den Nagel alten Stieles im Entstehen. Auch Blechschmiede und Dachdecker beschweren sich, dass das galvanisirte Blech und das Weissblech der Gegenwart bisweilen nicht mehr so gut vorhalten und ausdauernd seien wie vor etwa fünfundzwanzig Jahren. Trotz der höheren Produktionskosten ist der Bedarf an Schmiedeeisen gross genug geworden. Mehrere wichtige Industrien für dieses Produkt allein sind kürzlich sogar ins Leben gerufen worden. Für Kesselröhren wird Stahl als unpraktisch betrachtet und die meisten Lokomotivenöhren werden jetzt aus mit Holzkohlen gefrischtem Eisen hergestellt. Und diese neue Tendenz tritt nur klarer und immer klarer ans Licht; so erlaubt z. B. einer der grössten Stahlfabrikanten des Landes nicht eine einzige Stahlröhre in seiner Fabrik zur Herstellung von Kesseln, resp. kein einziges Stahlblechstück auf dem Dache seiner Fabrikgebäude.

Auch wenn Eisen und Stahl der Wucht der Biegung unterworfen werden, kann die Biegung nicht eine gleichsame genannt werden. Eine Authorität die vollkommen darin bewandert ist sagt: "Eine gutfabrizirte Wagneachse aus Eisen hergestellt, deren Metall eine Dehnstärke von 50,000 Pfund per Quadratzoll aufweist, ertrage dieselbe Faserwucht wie Stahl von 80,000 bis 85,000 Pfund Dehnstärke." Doch das genügendste Beispiel worin Stahl genau erwogen wurde und sich als mangelhaft erwiesen habe, ist in der Fabrikation von Zaundraht.

Die Zaundraht-Industrie hat sich ungemein entwickelt und ungeheuere Proportionen angenommen. Hunderte Patente sind für die Verbindungsvorrichtungen von Dräthen ertheilt worden und kann ein Reisender der den Westen besucht, die zahllosen meilenlangen Drahtzäune nicht übersehen die zum Einzäunen von Ranches u. s. w. heute so vielfach gebraucht werden. Die Aussicht scheint vorhanden, dass, falls Schmiedeeisen in genügend grossen Quantitäten hergestellt und Risse, Fehler und schlechte Schweissung ausgeschieden werden kann, dasselbe bald ein erfolgreicher Rivale des Stahles zu werden verspricht.

los á precios módicos, sino tambien el de obtener instrumentos de excelente calidad. Las fábricas están continuamente mejorando sus habilitaciones y facilidades, y reduciendo el costo de producción por todos los medios posibles. Al mismo tiempo sus expertos mecánicos trabajan asiduamente sin cesar en todos los departamentos inventando mejoras en la maquinaria para hacerla más atractiva, duradera y eficiente. La competición en el comercio de exportación es tambien muy activa, y se considera de gran importancia el recibir pedidos de los países extranjeros.

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Durante los ultimos pocos años ha sufrido considerablemente la industria azucarera de Trinidad. No pudiendo competir con Cuba y Puerto Rico, y no recibiendo la debida atención de su gobierno, se temió que llegaría á perecer la industria azucarera en esa Colonia. La reciente introducción de aparatos economizadores de trabajo, y espelialmente del arado al vapor, ha dado por esultado un aumento de 50 por ciento en la producción de ciertos ingenios por lo que respecta al cultivo de la caña.

No es un secreto que la prosperidad de la isla de Trinidad depende principalmente de la industria azucarera. El cacao ha usurpado el primer lugar entre los productos agricolas de la isla; pero la producción del azúcar y el creciente aumento del cultivo de la caña emplea un número de trajadores muchísimo mayor que el cultivo del cacao, y es un hecho evidente que la pérdida de la industria azucarera perjudicaría seriamente á la verdad la situación económica del país.

De tiempo en tiempo se les ha incitado á los hacendados á que usen el arado al vapor en las grandes haciendas del norte, para disminuir asi el costo de producción. El porvenir de la industria azucarera depende absolutamente de la reducción á su mínimo de semejante costo, y afortunadamente se ha evidenciado esto por la introducción del uso del arado al vapor y otros instrumentos economizadores de trabajo donde quiera que ha sido practicable hacerlo asi.

Los precios del azúcar reinantes en Inglaterra este año han sido tan bajos, que muchos de los ingenios no han tenido utilidad. Sin embargo, con el uso en aumento del arado al vapor y otra maquinaria moderna se reducirá materialmente el costo de producción en el porvenir.—*N. Y. Commercial.*

EXPORT IMPLEMENT AGE

NUR FÜR'S AUSLAND BESTIMMT.

Ein unabhängiges Blatt, das ausschliesslich dem Exporthandel in landwirtschaftlichen Maschinen, Pumpen, Windmotoren und sämmtlichen Artikeln der Land- und Milchwirtschaft gewidmet ist.

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Im Firmenverzeichnis für Käufer das im ersten Theil dieses Blattes wiedergegeben ist, werden unsere geehrten Leser die betreffenden Waarenartikel in deutscher Sprache wiedergegeben finden. Es geschieht dies um ihnen die Möglichkeit zu geben, mit unseren Inserenten leichter korrespondiren zu können.

Fabrikanten amerikanischer Gräthe deren Reklame in dieser Zeitschrift zu finden sind, sind in der Lage Korrespondenz in jeder auswärtigen Sprache zu hantiren. Unseren geschätzten Lesern ist es daher anheimgestellt, an unsere Inserenten in der ihnen konvenirendsten Sprache zu adressiren.

Das Arbeitsproblem ist seit Jahren bereits eine heikle Frage in Amerika. Der Mangel an Landarbeit ist in einem grossen Masse verantwortlich für die Verschiedenheit und die Hervorragenheit unserer landwirthschaftlichen Geräthe. "Nothwendigkeit ist die Mutter der Erfindung," es ist daher nur die Anwendung arbeitsparender Maschinerien die es den amerikanischen Landwirthen ermöglichen ihre Produkte zu ziehen und erfolgreich zu ernten.

Viele unserer amerikanischen Fabrikanten sind derart beschäftigt, den eigenen inländischen Markt befriedigen zu können, dass sie den Märkten anderer Länder bisher keine Aufmerksamkeit haben schenken können. Unsere hervorragendsten Fabrikanten kennen jedoch die ungeheuren Möglichkeiten die die auswärtigen Märkte ihnen bieten und haben in Folge dessen heute regelrechte Export-Abtheilungen eröffnet, wo allen auswärtigen Geschäften die sorgfältigste Aufmerksamkeit geschenkt wird. Die Inserenten des "*Export Implement Age*" gehören zu eben dieser Klasse Fabrikanten und dürften unsere geschätzten ausländischen Leser somit finden, dass jede einzelne Firma prompt und zuvorkommend in ihrer Geschäftstransaktion arbeitet.

Gar oft sehen sich amerikanische Geräthe-Fabrikanten genöthigt, ihre Establissements durch die Errichtung weiterer Fabrikationsbauten zu vergrössern. Das steigende Verlangen nach Geräthen, zu Hause als auch drüben, ist aber so enorm, dass die Leistungsfähigkeit aller unserer Fabriken bis auf's äusserste in Anspruch genommen ist. Während der letzten paar Monate haben viele unserer grössten Fabrikanten Tag und Nacht arbeiten müssen, um das wachsende Verlangen ihrer Kunden bewerkstelligen zu können. In den letzten paar Jahren sind so viele neue Gebäude errichtet worden, dass mit Wahrheit behauptet werden darf: älle unsere Fabriken sind neu und in jeder Weise modern." Jede nur denkbar verbesserte Einrichtung ist zur Anwendung gebracht worden und wird Maschinerie solcher Konstruktion angewandt, die die Arbeitskraft vieler Arbeiter verringert.

Eisen gegen Stahl

Während des letzten Jahrzehntes des soeben verflossenen Jahrhunderts hat das Steigen der Preise in der Fabrikation von Stahl, und gleichzeitig auch das für diesen Zweck angewandte Ersatzmittel, das hierzuvor nur für Schmiedeeisen gebraucht wurde, den aufmerksamen Beobachter Anlass zum Glauben gegeben, dass letzteres bald einen minderwichtigen Theil in der Metallurgie spielen werde. Viele der bedeutendsten Firmen der Industrie, und Carneggie sogar miteingeschlossen, haben sich augenblicklich von der Puddelfabrikation total zurückgezogen. Woirgend möglich ist Eisen durch Stahl verdrängt worden; ja es wurde sogar berichtet, dass ein Substitut von gutgestaltetem Metall, gleichen Ursprungs wie Schmiedeeisen, das oft vielfache Risse hat, ein weiser Schritt in vortrefflicher Richtung sein werde. Doch haben die ersten Jahre des zwanzigsten Jahrhunderts bereits eine bestimmte Richtung zu Gunsten des Schmiedeeisens hervorgerufen. Eine reiche Erfahrung lehrt, dass Stahl für Konstruktionszwecke sich bei Weitem nicht so gut erweist, als es erwartet wurde. Eisennägel wurden vom Markte vollständig durch Drahtstahlnägel verdrängt; viele Kaufkonsumenten haben Grund zur Beschwerde darin gefunden, dass letztere sich zwar leicht biegen. Auch wurde konstatirt, dass Gebäude, die mit Stahlnägeln errichtet werden, nicht so gut vorhalten, weil die Nägel leicht unterhalb am Kopfende verrosten. Für Gerüste und dergleichen z. B. hat der Stahlnagel weniger Haltkraft als der Eisennagel und ist somit ein wachsender Bedarf für den Nagel alten Stieles im Entstehen. Auch Blechschmiede und Dachdecker beschweren sich, dass das galvanisirte Blech und das Weissblech der Gegenwart bisweilen nicht mehr so gut vorhalten und ausdauernd seien wie vor etwa fünfundzwanzig Jahren. Trotz der höheren Produktionskosten ist der Bedarf an Schmiedeeisen gross genug geworden. Mehrere wichtige Industrien für dieses Produkt allein sind kürzlich sogar ins Leben gerufen worden. Für Kesselröhren wird Stahl als unpraktisch betrachtet und die meisten Lokomotivenöhren werden jetzt aus mit Holzkohlen gefrischtem Eisen hergestellt. Und diese neue Tendenz tritt nur klarer und immer klarer ans Licht; so erlaubt z. B. einer der grössten Stahlfabrikanten des Landes nicht eine einzige Stahlröhre in seiner Fabrik zur Herstellung von Kesseln, resp. kein einziges Stahlblechstück auf dem Dache seiner Fabrikgebäude.

Auch wenn Eisen und Stahl der Wucht der Biegung unterworfen werden, kann die Biegung nicht eine gleichsame genannt werden. Eine Authorität die vollkommen darin bewandert ist sagt: "Eine gutfabrizirte Wagneachse aus Eisen hergestellt, deren Metall eine Dehnstärke von 50,000 Pfund per Quadratzoll aufweist, ertrage dieselbe Faserwucht wie Stahl von 80,000 bis 85,000 Pfund Dehnstärke." Doch das genügendste Beispiel worin Stahl genau erwogen wurde und sich als mangelhaft erwiesen habe, ist in der Fabrikation von Zaundraht.

Die Zaundraht-Industrie hat sich ungemein entwickelt und ungeheuere Proportionen angenommen. Hunderte Patente sind für die Verbindungsvorrichtungen von Dräthen ertheilt worden und kann ein Reisender der den Westen besucht, die zahllosen meilenlangen Drahtzäune nicht übersehen die zum Einzäunen von Ranches u. s. w. heute so vielfach gebraucht werden. Die Aussicht scheint vorhanden, dass, falls Schmiedeeisen in genügend grossen Quantitäten hergestellt und Risse, Fehler und schlechte Schweissung ausgeschieden werden kann, dasselbe bald ein erfolgreicher Rivale des Stahles zu werden verspricht.

INTENTIONAL SECOND EXPOSURE

Der Fortschritt der Welt durch Erfindungen gekennzeichnet

Der einfache Nagel ist eine vortreffliche Illustration vom Unterschiede zwischen alte und neue Methoden. Früher wurde das Metall erst in Streifen geschnitten und dann mit Hammer in Form gehauen, ein erfahrener Arbeiter brauchte anderthalb Minuten zur Herstellung jeden Nagels. Heute werden sie aus Stahl hergestellt und sind nicht allein leichter, sondern auch viel stärker. Streifen werden mit Dampfscheeren geschnitten und ebenso in die betreffenden automatischen Nagelmaschinen gespeist. Ein einziger Mann kann drei Maschinen beaufsichtigen und jede einzelne Maschine wirft einen fertigen Nagel per Sekunde heraus.

May Island, Grossbritanien, besitzt heute einen Nebelhorn der in einer Entfernung von achtzehn Meilen gehört werden kann. Mehrere Nebelhörner ähnlicher Natur sollen sehr bald in verschiedenen Leuchtthürmen jener Gegend eingeführt werden um die Schiffe zu schirmen die in den "Firth von Forth" einlaufen.

Professor Cerebotani, ein Franzose, soll einen Apparat fertiggestellt haben, der vermittelst Telegraphendrath jede Eigenthümlichkeit einer Handschrift oder Zeichnung wiedergeben kann. Dies ermöglicht Cheques in tausendmeilenweiter Entfernung zu unterscheiben, eine gesetzliche Vollmacht aufzuzeichnen oder ein Bild zu senden. Es braucht nur eines einzigen Drahtes und die Maschine ist fertig. Ein Uhrwerk kontrollirt den Draht, ein Stab macht eine Cirkelbewegung und ein anderer bringt direkt senkrechte und wagrechte Schläge hervor.

An der Hand an welcher ein Mann durch Zufall seinen Mittelfinger verlor, hat Professor von Eifelsberg, in Wien, mit speziellem Erfolg eine seiner Zehen angenäht welche, wie es heisst, der Patient bald an Stelle des Fingers wird benutzen können.

Ein neuer Prozess, Alkohol aus Sägespähnen herzustellen, ist von Professor Classen, in Aix-la-Chapelle, ins Leben gerufen worden. Die Cellulose wird mit gasgeschwängerter Schwefelsäure behandelt und Glukose gebildet, alswann es durch Gährung in Alkohol verwandelt wird. Eine Tonne Sägespähne liefert ca. fünfzig Gallonen Rohalkohol oder fünfundzwanzig Gallonen reinen Alkohol. Es steht, jedoch, zu erwarten, dass man allmählig über dreissig Gallonen erzielen können wird.

Eine neue Lokomotiventype, bekannt als das "Affen-Bewegungs" Muster wird bald ihre erfolgreiche Thätigkeit an der "Southern Pacific" Eisenbahn zur Ausführung bringen. Es heisst dass diese Maschine das ganze Eisenbahnwesen ändern wird. So wurde ein Zug von 1,500 Tons von Ogden nach Wadsworth, Nev., mit nur einer dieser Maschinen befördert. Der ganze Treibmechanismus ist an den Seiten gelagert, wodurch ein steter Zugang möglich wird. Der Dampf erschöpft sich leicht und jeder Gegendruck ist ausgeschlossen. Es wurde ausgerechnet, dass diese neue Lokomotive 25 bis 40 Proz. Kohle sparen, und vierundfünfzig Meilen mit nur einer Ton Kohle wird laufen können, gegen fünfundzwanzig bis achtundzwanzig Meilen unter dem augenblicklichen System.

Nach einer deutschen Zeitschrift, soll Schweden planen jede Unze Wassers die heute über seine Fälle und Flüsse verloren geht für elektrische Zwecke zu verwenden. Techniker arbeiten bereits und stellen Vermessungen in den Gebirgen an. Dass dazu benöthigte Kapital wird unzweifelhaft schnell beigeschafft werden, sobald die endgültigen Vermessungen gemacht worden sind. Dasselbe kann auch von Norwegen berichtet werden, wo die Gewässer kürzere Distanzen zu fliessen haben, doch sich oft in ungeheueren Volumen erstrecken. In Schweden wird die Kraft in allen möglichen Sorten Fabriken eingeführt, in Norwegen, hingegen, soll diese Kraft sogar in den Gruben gebraucht werden—und zwar in den Eisen- und Kupfergruben.

Geographen, die die Hauptnationen vertreten, sollen stramm an die Arbeit sein, um eine Karte der ganzen Erde zu schaffen; das Verhältnis oder die Gradeinthenung soll 1 zu 1,000,000 sein. Professor Penck, der deutsche Geographe berichtet, dass neunundsechzig Seiten von den geplanten vierhundert siebenunddreissig Seiten bereits fertighergestellt worden sind. Die Meilendistanz wird je durch einen Raum von ca. ein Sechzehntel Zoll dargestellt sein. Es giebt allerdings viele Karten kleiner Flächen zu weit grösserem Verhältnis als diese sein wird, doch den ganzen Gesichtpunkt der bekannten Welt nach diesem Masstabe einzutheilen ist wahrlich ein Unternehmen von ungeheuerem Interesse.

Eine Berliner Zeitung spricht von einer neuen Vorrichtung für den Häringsfang. Ein vollständig wasserdichte Metallschachtel und wirft sie in die See um ausfinden zu können, ob deutscher Erfinder thut ein Mikrophon in eine Fische in diese Richtung sich bewegen. Ein Draht verbindet dieses unterirdische Mikrophon (welches die kleinen Laute bedeutend vergrössert) mit einem Empfangs-Apparat gewöhnlicher Konstruktion der deutlich verkündet was in der Seetiefe vor sich geht. Aussergewöhnliche Resultate sind damit in der Nordsee erzielt worden, wodurch der Häringszug genau ausgekundschaftet werden kann.

Uhren werden jetzt fabrizirt die die Stunden sprechend verkünden anstatt sie zu schlagen oder klingen. Dies wird vermittelst einer hochsinnigen Erfindung die am Telephon angebracht ist bewerkstelligt. Die Konstruktion ist eine derartige, dass der gesundeste Schläfer aus dem Schlafe geweckt wird durch den lauten Ruf der Stimme, die übrigens in verschiedenen Graden gestellt werdan kann.

Die Herstellung von Glasziegelsteinen für Gebäude wie auch zum Pflastern ist eine wohlanerkannte europäische Industrie geworden. Wie gewöhnlich haben die Deutschen diese Erfindung zu höherer Blüthe geschaffen als irgend sonstjemand. In Hamburg werden Glaswände errichtet wo Helligkeit nothwendig ist, und wo nach polizeilicher Verordnung die Wände sowohl fensterlos und feuersicher sein müssen. In Ost-Deutschland stellen drei Firmen solche Glasziegelsteine her. Diese neue Ziegelsorte ist zwar durchsichtig und lässt Licht einströmen, doch erlaubt es keine Einsicht ins Innere des Gebäudes.

Auch ein neues Todesinstrument ist erfunden worden. Ein litthauer Herr, Theodor Trautz, hat eine Flinte erfunden, welche vermittelst Elektrizität arbeitet und vier Tausend bis zwölf Tausend Schüsse per Minute abfeuert. Die Weite dieser neuen Waffe ist drei Meilen und ihre Vernichtungskraft, wenn die für sie gemachten Ansprüche auf Wahrheit beruhen, soll eine derartige sein, dass es solch ein Spielzeug wie das Magazingewehl total in den Hintergrund stellt. Nur ein einziger Mann ist nöthig das Gewehr zu hantiren.

Der "Ratcliff-Rotherhithe" Tunnel welcher jetzt unterhalb der Themse konstruirt wird, wird fünf Jahre zu seiner Fertigherstellung gebrauchen. Seine Länge wird 6,883 Fuss sein nebst äusserem Durchmesser von dreissig Fuss, der eine Wagenpassage von sechzehn Fuss gewähren wird. Zwei Trottoire werden konstruirt werden, je viereinhalb Fuss achteinhalb

Zoll breit. Wenn dieser Tunnel fertighergestellt ist, dann werden unter der Themse drei Tunnels vorhanden sein.

Das poröse Glas, das in Frankreich hergestellt wird, hat derartig winzige Löcher, dass weder Staub noch Zug eintrömen kann, und dennoch soll die Ventilation eine höchst vortreffliche sein.

Ein in Lancashire, England, wohnhafter Mechaniker soll eine Maschine erfunden haben, die mit zwei Zwirnrollen direkt nähen kann. Dadurch wird das Aufrollen der Spulräder vorgebeugt und auch mit der öfteren Einfädelung der Schiffe ist es abgethan.

Amerikenischer Handal mit Europa

Zweidrittel der letztjährigen amerikanischen Ausfuhr ging nach Europa, die Hälfte der amerikanischen Einfuhr kam aus Europa, was eine Handelsbilanz von sechzehn Proz. zu unseren Gunsten zurückliess.

In sechs Jahren betrug die Durchschnittsausfuhr der Vereinigten Staaten etwas über eine Billion Dollar jährlich, im Vergleich zu nur einer halben Billion Dollarwerth für den Rest der Welt.

Doch abgesehen von der enormen Ausfuhr unserer Waaren nach Europa im letzten Jahre (239,000,000 Dollar Fabrikationsartikel und für 782,000,000 Dollar Speise- und Fabrikanten Artikel) erwies sich doch der Prozentsatz im Vergleich zur Totalausfuhr wohl der allerniedrigste seit dem Bürgerkriege.

Während der zwanzig Jahre, 1866-1885, betrug der Prozentsatz unserer Ausfuhr nach Europa ca. 80 Proz. der Totalausfuhr. Von den 80 Proz. in 1885, kam eine Abnahme auf 77 Proz. in 1895 und ein Fall auf 67 Proz. in 1905.

Es ist Thatsache, dass die Vereinigten Staaten in ihrem Handel mehr und mehr kosmopolitisch werden, sie entwickeln in Folge dessen ihre Sendungen recht flott nach Kanada, dem Orient, den Latein-Amerikanischen Staaten und diversen Märkten am stillen Ocean.

Unsere Exporte nach Asien und Oceania, deren Totalprozentsatz in 1865, unter dem Reciprocitäts-Verfahren, so niedrig wie acht Proz, standen, erholten sich nach dem Widerruf des Reciprocitäts-Verfahrens in 1880 und betragen heute sechzen Proz. der Totalexporte.

Die asiatischen und oceanischen Exporte welche in 1880 nur zwei Proz. der Totalsumme betrugen, vier Proz. in 1890 und 7½ Proz. in 1900, überstiegen zehn Proz. aller Totalexporte in 1905 und versprechen innerhalb zehn Jahren wenigstens zwanzig Proz. zu erreichen. Dass dieser Anschlag konservativ gehalten ist beweist die Thatsache, dass die amerikanischen Exporte nach Asien allein von 55,000,000 Dollar in 1903 bis auf 136,000,000 Dollar in 1905 gestiegen sind, eine Nettozunahme also von fast 150 Proz. in etwa zwei Jahren.

Auch unsere Einfuhr aus Europa ist in der Abnahme begriffen. Der Hauptgrund dafür ist wohl dass in den letzten Jahren unser Einfuhrbedarf aus der alten Welt mehr auf Speisestoffe und Rohmaterialien zurückzuführen war, als in Fabrikationsartikeln. Tropische und halbtropische Produkte sind besonders in Nachfrage, wie z. B. Thee; Rohseide und Spezereien aus Asien; Zucker, Kaffee, Faserstoffe aus Oceania, und gleichartige Produkte; wie auch Früchte aus Latein-Amerika, Solche Einfuhrartikel erreichten einen Werth von etwas über 200,000,000 Dollar in 1885, 300,000,000 Dollar in 1895 und 500,000,000 Dollar in 1905.

Ein bemerkenswerther Effekt in der Prozentabnahme unseres auswärtigen Handels mit Europa ist die Handelsentwickelung die durch unsere Grenzhäfen über den stillen Ocean, den Golfstrom, den nördlichen und südlichen Seen zu Tage tritt besonders wenn diese Handelsbeziehungen mit den früheren Handelsmonopolien der atlantischen Häfen in Betracht gezogen werden.

Zum Beispiel: Die Einfuhr von den atlantischen Häfen fiel von 1,007,000,000 Dollar in 1900 auf 978,000,000 Dollar in 1905, wohingegen die Einfuhr von den Golfhäfen fünfundzwanzig Proz. gestiegen ist. Von den nördlichen Grenzhäfen, hingegen, war die Zunahme 55 Proz. und von den pazifischen Häfen 65 Proz.

Der Pacific, der Golf und die Grenzhäfen welche blos fünfundzwanzig Proz. der Landesausfuhr in 1895 hantirten, haben, kurzgebunden, dreissig Proz. in 1900 aufgewiesen, (und für die letzten zwölf Monate, am 31. December, 1905) soviel als vierzig Proz. des Gesammt-Ausfuhrhandels aufzuweisen. Hingegen haben die atlantischen Häfen 75 Proz. der Totalexporte in 1895 eingebüsst und erreichten die Ziffer von sechzig Proz. in 1905.

Eine weitere fünfjährige Entwickelung amerikanischen Handels mit Asien, Kanada, und Latein-Amerika wird voraussichtlich wohl die Hälfte des Totalhandels ausserhalb der atlantischen Häfen ergeben.

Automobiles

Man glaubt allgemein, dass das "grosse Ende" der Automobil-Industrie wird schliesslich in der Fabrikation schwerer Motortrucks und Geschäftswagen zu finden sein. Der Regierungscensus der Wagenindustrie für das Jahr 1900, theilt jedoch durchaus nicht diesen Glauben. Auch wird er nicht unterstützt bei der Durchsicht der Verdienste in der Wagenindustrie voriger Censusjahre, so weit zurück als 1850.

In 1900 erreichte der Werth aller Familien- und Vergnügungswagen die fabrizirt wurden die Summa von 51,504,176 Dollar und die Wagenzahl betrug 907,482. Die Zahl der Geschäfts-, Landwirthschafts-, Regierungs- und Municipalwagen belief sich auf nur 575,359, zu welchen noch 2,316 öffentliche Beförderungswagen hinzukommen; beide Gattungen erreichten einen ungefähren Werth von 32,627,787 Dollar, oder ca. drei Fünftel des Werthes der obengenannten Familien- und Vergnügungswagen. Schlitten und Handschlitten von welchen ca. 118,222 fabrizirt wurden sind in diesen Ziffern nicht eingeschlossen. Dieser Posten würde etwa 2,324,600 Dollarwerth der Vergnügungsrubrik der Produktion noch beifügen. Andererseits wurden aber Waggons, Karren, Trucks von Fabrikanten landwirthschaftlicher Geräthe fabrizirt und eine grosse Anzahl anderer ähnlicher Fahrzeuge von Schmieden, Stellmachern u. dergl. im ganzen Lande verbreitet.

Die obengenannten Zahlen sind nicht ganz genau, weil viele Fabrikanten ihre Produktion nicht benennen wollten oder unvollkommene Berichte lieferten; im Ganzen darf aber angenommen werden, dass die Verhältnisse der Ziffer recht genau wiedergegeben sind.

Es ist augenscheinlich von gen. Ziffern wohl nicht anzunehmen, dass die Zahl der von diesem Lande benötheten Geschäftswagen und aller stets im Gebrauche befindlichen Fahrzeuge dieser Kategorie zwei Drittel geringer ist als die Zahl der Familien- und Vergnügungs-Fahrzeuge (575.351-907.482). Angenommen auch, dass die Geschäftswagen zweimal so lange vorhalten als die leichtgebauten Fahrzeuge, so ist augenscheinlich deren Zahl die grössere der beiden, und doch müsste die produktive Kapacität der Fabrikanten für die geringere Klasse grösser sein, wenn die schnelle Abnutzung der ersteren in Betracht gezogen wird.

Aehnliche Konditionen werden, ohne Zweifel, erstehen sobald Geschäfts Motorfahrzeuge ins Leben gerufen werden und ebenso alltäglich wie die gewöhnlichen Automobiles geworden sind. Wenn der Motor Geschäftswagen zweimal so stark als der Liebhaberwagen gebaut, und seine Konstruktion eine derartige ist, dass er zweimal so lange als der augenblickliche vorhalten kann, dann vielleicht dürfte er sich mit der Zeit einführen und zu dem gestalten was die Befürworter der Automobil-Industrie von ihm für die Zukunf erhoffen.

Dieser Fall scheint sich ungefähr wie folgt zu verhalten: Je kürzer das Leben dieses Geschäfts Motorfahrzeuges sich erweist, um so langsamer dürfte seine Einführung werden. Andererseits wieder, je länger er vorhält, um so geringer wird die jährliche Zahl der zu fabrizirten Wagen sich erweisen, um dem event. regelmässigen Bedarf nachzukommen. Welcher Standpunkt auch hinsichtlich der Dauerhaftigkeit der Geschäfts Motorfahrzeuge genommen werden kann, im Vergleich zur Dauerhaftigkeit der gewöhnlichen schnellen Automobils, es steht unbedingt fest, und es scheint dass die Statistike der Fahrzeug-Industrie diesen Glauben theilen: die Fabrikation der Geschäfts Motorfahrzeuge kann sich wohl nie zu der Höhe heraufschwingen, als der Zweig der Automobil-Industrie der jetzt in solcher Blüthe steht.

Da nun die Produktion der Geschäfts Motorfahrzeuge heute so weit zurück ist und sich auf vielleicht nur 1,500 Wagen jährlich gegen 40,000 der anderen Sorte (für 1905-1906) beläuft, steht eine sehr thätige Geschäftssentwickelung dieser Branche während der nächsten zehn Jahre zu erhoffen, eine Thätigkeit aber, die eher geistig zu erwarten steht, in der Hoffnung, dass schliesslich doch die jährliche Produktion dieser Klasse unter der jährlichen Erzeugnis der Vergnügungsfahrzeuge zurückbleiben muss.

Das Automobil hat recht viele Veränderungen auf dem Gebiete der Vergnügungs Reisefahrzeuge hervorgerufen. Leute die nie zuvor daran dachten, je ein Pferd zu besitzen, kaufen jährlich ein neues Automobil. Auch das Geschäftsfahrzeug dürfte ähnliche Ueberraschungen hervorrufen. Diese Branche hat somit keine ganz vollkommene Aehnlichkeit mit der gewöhnlichen Fahrzeug-Industrie. Im Gegentheil es weist einen gar schwachen Punkt auf, der aber in Betracht gezogen werden sollte, weil er günstig für die Möglichkeit einer grösseren event. Produktion dieser Klasse Motor-Fahrzeuge für Geschäftszwecke ist, grösser als die obenangeführten Ziffer angeben.

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"When the Dutch established their influence in these seas and relieved the native princes from their Portuguese oppressors, they saw that the easiest way to repay themselves would be to get this spice trade into their own hands. For this purpose they adopted the wise principle of concentrating the culture of these valuable products in those spots of which they could have complete control. To do this effectually it was necessary to abolish the culture and trade in all other places, which they succeeded in doing by treaty with the native rulers. These agreed to have all the spice trees in their possessions destroyed. They gave up large, though fluctuating, revenues, but they gained in return a fixed subsidy, freedom from the constant attacks and harsh oppression of the Portuguese, and a continuance of their regal power and exclusive authority over their own subjects, which is maintained in all the islands except Ternate to this day. It is, no doubt, supposed by most Englishmen, who have been accustomed to look upon this act of the Dutch with vague horror, as something utterly unprincipled and barbarous, that the native population suffered grievously by this destruction of such valuable property. But it is certain that this is not the case."

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fel, erstehen sobald Geschäfts Motorfahrzeuge ins Leben gerufen werden und ebenso alltäglich wie die gewöhnlichen Automobiles geworden sind. Wenn der Motor Geschäftswagen zweimal so stark als der Liebhaberwagen gebaut, und seine Konstruktion eine derartige ist, dass er zweimal so lange als der augenblickliche vorhalten kann, dann vielleicht dürfte er sich mit der Zeit einführen und zu dem gestalten was die Befürworter der Automobil-Industrie von ihm für die Zukunf erhoffen.

Dieser Fall scheint sich ungefähr wie folgt zu verhalten: Je kürzer das Leben dieses Geschäfts Motorfahrzeuges sich erweist, um so langsamer dürfte seine Einführung werden. Andererseits wieder, je länger er vorhält, um so geringer wird die jährliche Zahl der zu fabrizirten Wagen sich erweisen, um dem event. regelmässigen Bedarf nachzukommen. Welcher Standpunkt auch hinsichtlich der Dauerhaftigkeit der Geschäfts Motorfahrzeuge genommen werden kann, im Vergleich zur Dauerhaftigkeit der gewöhnlichen schnellen Automobils, es steht unbedingt fest, und es scheint dass die Statistike der Fahrzeug-Industrie diesen Glauben theilen: die Fabrikation der Geschäfts Motorfahrzeuge kann sich wohl nie zu der Höhe heraufschwingen, als der Zweig der Automobil-Industrie der jetzt in solcher Blüthe steht.

Da nun die Produktion der Geschäfts Motorfahrzeuge heute so weit zurück ist und sich auf vielleicht nur 1,500 Wagen jährlich gegen 40,000 der anderen Sorte (für 1905-1906) beläuft, steht eine sehr thätige Geschäftssentwickelung dieser Branche während der nächsten zehn Jahre zu erhoffen, eine Thätigkeit aber, die eher geistig zu erwarten steht, in der Hoffnung, dass schliesslich doch die jährliche Produktion dieser Klasse unter der jährlichen Erzeugnis der Vergnügungsfahrzeuge zurückbleiben muss.

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INTENTIONAL SECOND EXPOSURE

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He then proceeds to charge that the native sultans had a "rigid monopoly" of the spice trade before the Dutch arrived, and that the latter, by prohibiting the cultivation of spices left the natives more time for the production of food and other saleable things, and concludes "I believe, therefore, that this abolition of the spice trade in the Moluccas was actually beneficial to the inhabitants, and that it was

an act both wise in itself, and morally and politically justifiable."

It will be noticed that in a very brief space he employs the arguments, mainly relied upon, to support monopoly wherever it has appeared, and also for colonialism in its worst forms. In the first place, the Dutch had to "repay themselves" for having "relieved the native princes from their Portuguese oppressors"—that is, they had to collect pay for their philanthropy; second, as the sultans were doing the same thing, the Dutch might as well do it—that is, the very familiar argument, "If we don't do it, somebody else will;" and third, it was a good thing for the natives— it is never difficult to prove this to the man who profits by the system. But nothing is said as to the effect of the monopoly upon consumers of spices throughout the world. It does not seem to occur to the writer above quoted (Wallace) that they are to be considered. The view point, from which he looks at the whole matter, can be judged from his admonition to the British that they must not be too much "afraid of the cry of depotism and slavery" if they are to improve their "rude subjects" and raise them up toward their own level.

At the beginning of the nineteenth century, the Dutch East India Co. became involved, and turned its possesions over to the crown of Holland, since which time Netherlands India has been a crown colony. There was a brief interim of British rule (1811 to 1816) but at the close of the Napoleonic wars, the Dutch regained their possession by treaty, and the English congratulated themselves that they had been relieved of a burden.

The Dutch have governed Java through the natives, a resident acting as "elder brother" to the Javanese ruler. While the native government has not been disturbed, and while the native ruler is protected from rival claimants, he is really a prisoner in his own castle and can not leave the premises without permission. However, as these native rulers receive good salaries and are allowed to exact homage from their subjects, they seem quite content with their lot, and the people, naturally docile, yield obedience to the chiefs of their own race.

The culture system, aside from the indirect method of ruling, is the distinguishing feature of Dutch colonialism as is existed until recent years. The East India Co. followed the practice of the native princes and collected a land tax, or rent of one-fifth of the crop, and required in addition the labor of all able-bodied males for one day in five. During the five years of British rule, forced labor was abolished and a land tax substituted for the one-fifth rent, while a separate property system was encouraged. As soon as the Dutch resumed control, they went back to their old regime, except that they demanded one day's labor in seven, instead of one day in five. By regulating the crops to be planted, by collecting the fifth of the produce of the land, and by compelling the peasants to plant one-fifth of the village land in crops to be sold to the government at a fixed price, far below the market price, the government of Holland derived large revenues from its India possessions. It has been estimated that in fifty years a sum exceeding three hundred million dollars was exacted from the natives in forced labor and in the sale of produce below the market price. As might be expected, the greed which manifested itself in the conduct of the government aroused increasing criticism, and the authorities were at last compelled to change their methods.

Those who travel through Java are unanimous in their praise of the beautiful roads and the substantial bridges that span the streams; they admire the commodious plantation homes, the splendid tea and coffee farms, and the well built and well kept cities, and they are inclined to excuse the means employed by the foreigners in the development of the islands. It must be remembered, however, that the rice fields, which are most attractive, existed before the Europeans set foot upon the soil, and that the spices, instead of being introduced by the Dutch, were the products which first attracted their attention. The Dutch have charged a high price for the services rendered and have given little attention to the intellectual and moral improvement of the people. Being surprised that the Javanese had a well developed system of agriculture and irrigation before the Europeans arrived, I asked an intelligent Hollander: "What, then, have the Dutch taught the Javanese?" and he replied laughingly, "We have taught them to pay us their money."

The fact that the culture system has after full discussion been abandoned, is a sufficient condemnation of it, and the fact that reforms are being introduced is a confession that they were needed. I had the pleasure of meeting the present governor, General Van Heutsz, and found him interested in enlarging the educational system, and in lightening the burdens upon the people. He has already reduced the labor requirement one half, so that the natives now give one day in fourteen to the government instead of one day in seven.

The governor of Netherlands India receives the same salary as our president, and the president receives a salary which, including allowances, amounts to nearly ten thousand dollars. The expenses of the colonial government are paid by the natives and by the foreigners residing there, but the government of Holland no longer draws an income from the islands. Her advantages are at present, indirect ones, and consist, first of profits earned by her citizens in trade with the islands; second, of rents collected by her citizens from plantations; and third, of salaries drawn by her citizens for civil or military service in the islands.

Formerly, land was sold to foreigners, but for a great many years it has been the policy of the government to sell no land whatever, to either Europeans or Asiatics, but to lease it for seventy-five years or less. I was surprised to find that the natives own considerably more than twice as much as foreigners hold under lease or deed and land, the product of which must be sold to the government at a fixed price, has been reduced to 300,000 acres.

One of the beneficent reforms about to be inaugurated is the establishment of government pawnshops which will loan money to the people at a low rate of interest, and thus rescue them from the extortion which has been practiced upon them. The government has already established savings banks in which the deposits are constantly increasing.

There is a growing demand in Java for a greater recognition of the people in government, and this demand is being yielded to in the cities. The colonial authorities have encouraged the soldiers to marry native women, these marriages terminating when the soldiers return to Europe. As a result, there is a half caste element which has been given better educational advantages than are accorded to the natives. This element considers itself as native although counted in the census as European and is already organizing with a view of securing more civil liberty.

Whatever may be said of Dutch colonialism in the past, a new era is dawning, and the present rulers recognize that their administration must be measured by the improvement in the people rather than by the profits drained from the land by Europeans.

COTTON PAPER

Cotton paper is one of the novelties. The south is demonstrating that all grades of paper, from the best form of linen grade to the lowest, can be manufactured from cotton stalks. In addition to this variety of by-products such as alcohol, nitrogen, material for gun-cotton and smokeless powder are secured in profitable quantities. It is estimated that on an acre of land producing a bale of cotton at least one ton of stalks can be gathered. Upon this basis of calculation this new industry annually can depend upon from 10,000,000 to 12,000,000 tons of raw material. This not only will furnish necessary supplies to meet all home demand, but also admit of the export of pulp or finished products to foreign countries. The bulk of the material going into the manufacture of paper at the present time is spruce pine, which annually is becoming more expensive in the depletion of the forests and the high prices which such timber commands in the markets for other uses. The utilization of a waste product, such as the cotton stalk, manufactured into paper pulp will be a vast benefit to the whole country.

ELECTRICITY DRAWS WATER

A very singular property of electric currents, which is not generally known, is that called electrical osmose. An electric current flowing through the ground will cause water —slowly and in small quantity, of course—to travel along with it in the direction of the negative electrode. During some recent experiments in England water was thus caused to enter a glazed pipe set in the ground. It penetrated the walls of the pipe when electricity was passed through them. The *Electrical Review* suggests that this principle might be applied to supply moisture to plants. Electric currents properly arranged in the ground would collect water dispersed through the soil and condense it round the roots.

GREAT IRRIGATION SYPHON

Much interest is taken in the recent opening of a gigantic siphon that carries the water of the Aragon and Catalonia irrigation canal across the valleys of Sosa and Ribabona. By this means water is brought to more than 247,000 acres of land hitherto virtually barren through lack of irrigation. The great siphon consists of 2 main tubes, 5/8 of a mile long, and 12 feet 5 inches in diameter, lined with steel plates 3 millimeters thick, bound with iron hoops and encased in concrete. The tubes have a capacity of 7,700 gallons of water a second.

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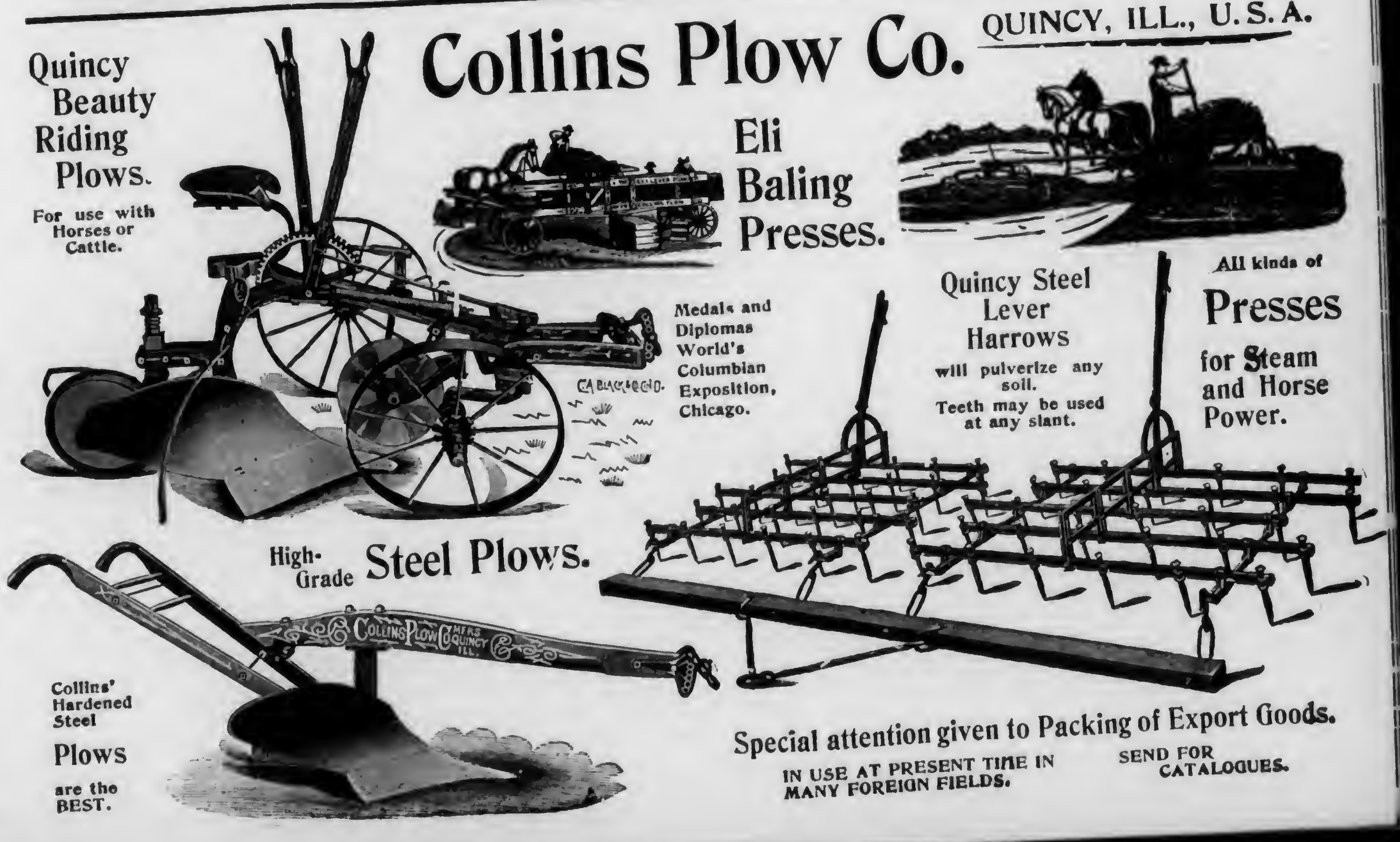

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Some Recent Inventions

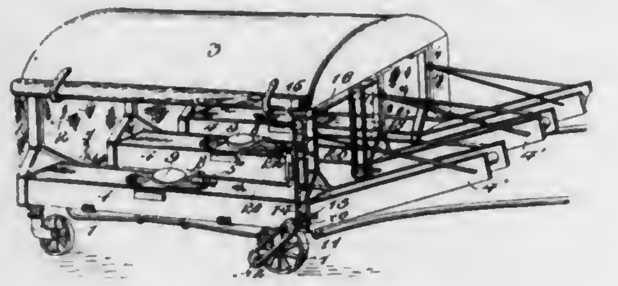
The following recent inventions have been specially reported for the EXPORT IMPLEMENT AGE by Mr. C. LeRoy Parker, Solicitor of Patents, 707 G Street, N. W., Washington, D. C.

Cotton Harvester

No. 823,034. A. G. M. Combde. June 12, 1906

The object of the invention is to provide a device of this character upon which the cotton-pickers may ride while picking the cotton and which will protect the pickers from the sun's rays while working and also protects the gathered cotton from rain.

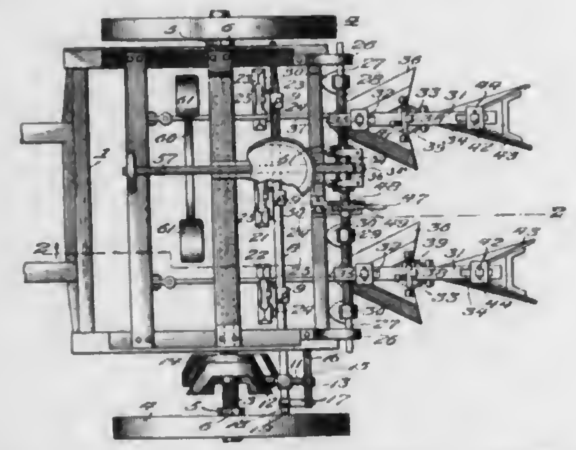
A further object is to provide means, whereby the cotton picked, may be conducted and discharged into suitable receptacles, carried by the harvester.



The cotton-harvester comprises a wheel-supported frame, a series of troughs or frames spaced apart and adapted to receive the picked cotton, revolving seats mounted on slidable frames supported upon the troughs, an endless conveyer passing around rollers, journaled in the ends of the troughs, and inclined conveyers extending from the ends of the frames at one end of the machine.

Beet Cultivator

No. 823,338. A. Lersen. June 12, 1906

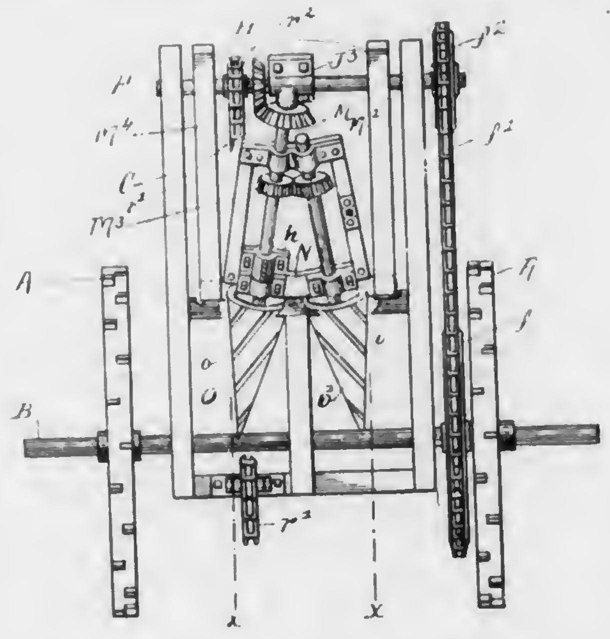


A beet-harvester comprising a frame, a transverse supporting-bar slidably and pivotally mounted thereon, cultivator-shovels carried by the bar, beams also carried by the bar, cutting and earth-treating devices carried by each beam, each having a shank pivotally and vertically adjustably attached to the beam, a link connecting the shanks of said device to move in unison, a pressure-spring acting on the shank of the earth-throwing device, an intermediate bar vertically adjustable on the beam, a link connecting said bar with the cutting device, locking means for holding said shanks and intermediate bar in adjusted position, means for locking the supporting-bar to vertically adjust the devices, and rack and pinion mechanism for sliding said bar to laterally adjust said devices.

Beet Harvesting Machine

No. 823,583. G. F. Conner. Jrne 19, 1906

This invention relates to beet-harvesting machines, and especially to means for removing beets from any kind of soil and delivering them ready for treatment at a refinery.



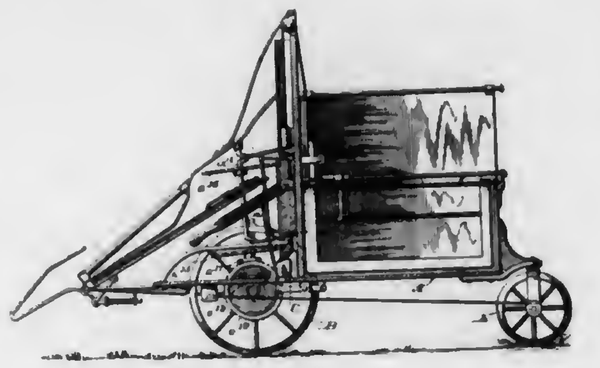
In the operation of the machine, the drive-wheels are laterally adjusted, so as to place the cones in line with the row to be pulled and also to avoid adjacent rows. The pulling-cones are inclined, so as to enter the ground at an angle which the character of the soil demands. In case it is desirable to discharge the beets at one side of the machine the yoke of the cone-shafts is tilted by the proper lever, so that the beets roll over the lower cone and are thrown out at one side of the machine. The position of the cones beneath the main axis of the machine causes them to ride at a constant distance from the surface of the ground regardless of any irregularities which the draft-wheels encounter.

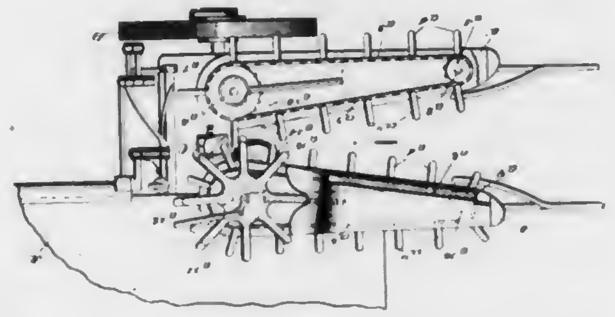
A novel feature of the machine is the adjustment which allows tilting of the pulling-cones, whereby the beets are delivered on one side of the machine or other, as desired, thus giving a clear path for the return of the machine across the field, while the beets are left in a narrow strip where they can be easily gathered. If the pulling-cones are fixed in a horizontal position, the beets would be delivered at random on either side of the machine, thus increasing the trouble of gathering the crop, as well as impeding the passage of the machine.

Corn Harvester

No. 823,880. W. E. Koch. June 19, 1906

In the operation of this Corn-Harvester, when a leaning stalk is encountered, it is engaged by the conveyer-chains, which have a tendency to lift it to an erect position. When severed by the cutters, the butt of the stalk slips back into the check, which retains it until the conveyer-chains lift the upper end thereof into a position where it may be engaged by the upper star-wheels. The star-wheels engage the stalk at its upper and its lower end, forcing the butt thereof past the stop-plate, the spring of which yields to allow its passage.





The patent covers the combination in a corn-harvester with the frame, of conveyer-chains on the frame for engaging the stalks, a cutter on the frame at the rear of the conveyer-chains, star-wheels for receiving the stalks from the conveyer-chains, and a check for the butts of the stalks, comprising a bracket secured to the frame behind the cutter, and provided with upstanding sides, a stop hinged to one of the sides and comprising a curved vertical plate normally extending between the sides of the bracket, the plate having upon its upper edge a flange, a spring for maintaining the stop in position, and means for regulating the tension of the spring.

FORCE OF 'QUAKE

They felt the San Francisco earthquake in China. The Zi-ka-wei observatory, at Shanghai, says that the great San Francisco earthquake was registered by the seismographs there. The shocks were fairly strong, and they lasted a little more than one hour and thirty-four minutes. The first preliminary tremors, transmitted through the mass of the globe, began at 9.35 P. M. Chinese coast time. The first large waves, travelling along the crust on an arc of a great circle, were felt at 9.55.54. The last waves of declining amplitude left their traces at 10.31.35 P. M., and the last slight movements of the ground died away at 11.09.44 P. M., April 18. These records promise valuable information in determining the velocity of propagation of the seismic undulations by connecting them with observations of the exact minute and second of the occurrence at San Francisco.

Immigration for the year ending June 30th, reached 1,100,073. This was 73,574 in excess of the proceeding year, and the largest on record. Most of the immigrants came from Russia, Austria-Hungary and Italy. During the year 12,433 intending immigrants were turned back, most of them because of disease.

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SHIFTING INDUSTRIAL CONDITIONS

The changes which take place in the industrial empire of the world are scarcely less interesting than is the shifting of political supremacy. They are but little noticed while in progress, but become manifest when one looks back over a considerable period of time.

In this connection, a statistician of the Department of Commerce and Labor has compiled some data.

Twenty-five years ago, the supremacy of England in manufactures of iron and cotton was undisputed. But the American product of iron now far surpasses the British. In structural iron, Belgian manufacturers undersell those of England. Germany has developed into the most formidable competitor with England in manufactures of iron and steel. Her ship yards take contracts away from the shipbuilders of Belfast and the Clyde. The largest steamships constructed of late years have come from German yards.

The German manufacturers are seeking the encouragement of their Government more and more to relieve them of dependence upon British supplies of iron and steel materials. In the finer articles, such as cutlery, German products compete successfully with English in foreign markets. The increasing ratio of German goods of this class among our own imports marks this change.

In cotton manufactures, still more remarkable changes are taking place. Only fifteen years ago, Great Britain had considerably more than half of all the spindles in the world. She has now less than half. During the past twenty years, the increase in British spindles has been about 6 per cent. On the continent of Europe and in the United States, the ratio of gain in the same period was four times that, while the increase in India was 70 per cent.

The development of cotton manufactures in the Far East is progressing at a rapid rate.

India, China and Japan have increased their productions immensely, despite the unsettled condition of political affairs in the East, and if they do not yet compete in the markets of the world, will soon supply a large part of their own wants.

The Japanese ("Yankees of the East") promise to justify that term by their industrial alertness and capacity, as well as in other ways. They are deft, painstaking and thorough in everything they do. The industrial exhibitions in Japan of late years have startled foreigh observers by the variety and excellence of the products displayed. Not only is great improvement apparent in the native industries, but the products of Europe and America have been shown to be well adopted, copied, and in some instances improved.

There have been shown at these exhibitions, woolen fabrics, canvas and the heavier cotton goods; ropes and cordage; carpets of cotton and hemp; remarkable exhibits of chemicals; perfumery, brushes, and toilet requisites; lamps and glassware; clocks and watches; scales, from those for weighing railway cars to the most delicate instruments; bookbinding and printing apparatus and schoolroom appliances; and all sorts of implements, from improved agricultural machinery down to the finest cutlery and surgical and mathematical instruments.

Not only are these things made in Japan as in America or Europe, but the machinery for making them is also constructed there.

There have, up to the present time, been no treaties which protect the patented inventions of Western nations, and the ingenious Japanese artisans have been accustomed to copy what they chose. Last year, however, this Government negotiated treaties with the "Island Empire," looking to the protection of American inventions and copyrights.

Japanese competition is most serious, because skilled labor brings but a trifle over ten cents a day in Japan. The wants of the workmen are few, and trade unions are unknown. It is plain that the manufacturers of the United States and Europe must reckon with a competition from Japan which includes the elements of ingenuity, excellence of product, and low cost of production in an unusual degree.

NOUNS OF MULTITUDE

A foreigner looking at a picture of a number of vessels, said "See what a flock of ships." He was told that a flock of ships was called a fleet, and that a fleet of sheep was called a flock. And it was added, for his guidance, in mastering the intricacies of our language, that a flock of girls is called a bevy, and that a bevy of wolves is called a pack, and a pack of thieves is called a gang, and that a gang of angels is called a host, and that a host of porpoises is called a shoal, and a shoal of buffaloes is called a herd, and a herd of children is called a troop, and a troop of partridges is called a covey, and a covey of beauties is called a galaxy, and a galaxy of ruffians is called a heap, and a heap of oxen is called a drove, and a drove of blackguards is called a mob, and a mob of whales is called a school, and a school of worshippers is called a congregation, and a congregation of engineers is called a corps, and a corps of robbers is called a band, and a band of locusts is called a swarm, and a swarm of people is called a crowd.

ABYSSINIA

The most interesting part of the dark continent is Abyssinia. Here the beasts of the field and the flowers of the meadow from the Mediterranean region, meet those of tropical Africa. Here the snow capped mountains retain a wild goat; here, also, is a peculiar and aberrant dog, and in the western lowlands is a true wild boar. Several of the antelopes and two or three species of monkey are peculiar to Abyssinia, as are numerous birds, a few fish, two or three reptiles, and a great many plants. The human races are of varied types and widely different origins, speaking a diversity of languages, some of them as yet unclassified. In the extreme southwest are negro types, in the southeast and south, they are handsome Gala-Hamitic or Somala stock, in the north, there are Hamite and Semite, and traces of ancient Greek or Egyptian colonies, and dark skinned Jews, whose origin seems to ante-date the destruction of Jerusalem. Abyssinia has a history going back to a thousand years before the Christian era.

VENTILATING A TUNNEL

One of the difficulties and objections in connection with the working of the New York Subway is the proper cooling and ventilating of the tunnel, especially in warmer weather; the difficulty arising from the fact that the heat generated in the operation of trains is not dissipated in a sufficiently rapid manner. To improve conditions in summer the air must be renewed more frequently and it must also be cooled. Many plans have been suggested for this work and the Chief Engineer of the Board of Rapid Transit Commissioners has submitted a report containing certain recommendations in the matter. The plan involves changing the air, though the report also contains three suggestions for cooling the air, either by the evaporation of water, by refrigeration, or by absorbing the heat by disposing relatively cool water throughout the Subway in some manner yet to be determined.

For changing or renewing the air the report recommends the use of the exhaust fans and louvres, valves or ventilators between stations. For that part of the Subway between Brooklyn Bridge and Columbus Circle fourteen combined valve and fan chambers are recommended, the valves to be in continual operation, while the fans will be used only at night, in periods of excessive heat and emergencies. It is said that the fans and valves working together will renew the air throughout the Subway every half hour, and in order to get the best results from these devices it is proposed to make more openings at the stations for inflowing air by cutting out six thousand square feet of vaulting at the several stations and substituting gratings with copper drainage pans.

The valves will open outwards and will be operated automatically by the passage of the trains, the increased air pressure as a train goes by furnishing the opening power. And with the opening of these valves the heated air will rush out and in its place will come the fresh air from the intakes at the stations. Naturally as the train operates the exhaust valve, the greater the number of trains passing through the Subway the greater will be the air renewal. The vitiated air after passing through the valves goes through cycloidal tubes which diminish its velocity and from these reach the surface through gratings in the sidewalks. If serious objection arises to these sidewalk gratings it is proposed to build ornamental chimneys over the gratings which will discharge the air ten feet above the ground.—*Commercial America.*

A GIANT VOICE

During the celebration of the fete of the Summer Solstice on the summit of the Eifel Tower, an extraordinary megaphone, capable of carrying the human voice to a distance of nearly two miles, was employed to amaze the Parasians. The apparatus is the invention of Messrs. Laudet and Gaumont. The immense magnification of sound is produced by the aid of a series of explosions of a detonating gas. The detonations are governed in period and intensity by the movements of the stylus over the phonographic record bearing the original impressions of the sonorous vibrations. As a greater or lesser quantity of gas is admitted the intensity of the sound is varied. With this machine words uttered in an ordinary tone are clearly heard more than 300 feet away.

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NEW ZEALAND EXPOSITION

The New Zealand International Exhibition which opens in November, promises to be the most important affair of its kind which has ever been seen in Australasia.

The total amount of ground space vested in the commissioners, for the purposes of the exhibition, is 114 acres, and there is every indication that the whole area will be covered by the buildings which are required to complete the attractions of the exhibition.

The main building of the exhibition is now fast approaching completion. Its total dimensions are 1,000 feet by 365 feet. This building runs parallel with the river Avon, and between the frontage of the building and the bank of the river, all the ground is being laid down in grass lawns, flower-beds, and generally presents an attractive appearance.

The first contract in connection with this building was let for a sum of £26,000. This provided for the erection of the whole frontage of 850 feet by a depth of 90 feet; subsequently this was extended by an addition of 130 feet of annexes, at a cost of £9,000. Further additions were found necessary, and it has now been extended a further 145 feet in depth and 1150 feet frontage, and the cost of this latter extension, which is being carried out at a schedule rate, will amount to something like £12,000.

The next important building is the machinery hall, which provides floor space to the extent of 95,000 square feet, and which is being erected at a cost of £12,000.

The total area of floor space applied for amounts to over 300,000 square feet. Twenty thousand feet of space has been reserved for the British Government's exhibit, and this space is located in what is known as the "British Court." Provision is also being made for an application of 10,000 square feet, which has been received from the Dominion of Canada, and also for 5,000 square feet of space for the state of New South Wales, and 2,000 square feet for the state of South Australia. The total space required by Australian exhibitions, including the state government exhibits, will be 10,000 square feet.

The frontage of the main building is being covered with a patent material described as "stuccoline." In appearance it resembles white marble, and the ornamental mouldings produce a fine effect. The central dome and the tops of the various towers will be covered with bronze paint, and it is generally conceded that the effect of this and the general appearance of the front of the building will be of a very handsome and striking character.

One special feature in connection with the exhibition will be the holding of an International Agricultural and Pastoral Show, under the auspices and organization of the Canterbury Agricultural and Pastoral Association. To enable this association to take this work up in a manner befitting the occasion and to illustrate to visitors the resources of the colony in the matter of stock, with which the two principal industries of the colony are associated, namely, the frozen meat and dairying industries, the association is being subsidized to the extent of £1,000, in exchange for which they have agreed to hold an extra day's show and to extend certain concessions to the members of all kindred associations throughout the colony and the commonwealth.

It is intended to make music one of the particular features of the exhibition. Arrangements have been made for the appearance of bands of not less than 25 performers every night, and one afternoon each week during the whole progress of the exhibition. An electric pneumatic organ has been specially manufactured for the exhibition, and, as it will be the first of this type introduced into the colony, it is expected to be a surce of considerable interest and pleasure.

In addition to this a permanent orchestra of 30 performers is being engaged, and this number will be supplemented by amateurs, drawn from the musical societies of Christ Church. An international band contest has been arranged, and it promises to be supported and participated in by a great number of bands within the colony and from Australia.

An athletic field is being laid out, which will provide a turf track a quarter of a mile in length. The inside of the track will be used for sports requiring such accommodations. Seating accommodation is being erected around the track. It is proopsed to use the ground for athletic sports of all descriptions, military tournaments, fire brigades' demonstrations, international axemen's carnivals, tugs-of-war and other out-door sports of a similar nature. Displays of fireworks to the number of 18 have been arranged. Such displays being very uncommon in New Zealand, there is little doubt that they will be a source of considerable interest.

The home industries section of the exhibition will be a feature in itself, no end of trouble having been taken to make it comprehensive and thorough; and an examination of the schedule issued by the committee in charge will prove the commendable interest which is being taken in organizing and promoting the section.

An enthusiastic and capable committee has in hand the photographic section, and this committee is arranging a number of interesting competitions, the results of which will be to equip the exhibition with some splendid specimens of photographic art. Horticultural and flower shows, and a floral fete are also being arranged.

Most of the important districts in New Zealand are organizing what are described as "district displays" of their general products, resources and manufacturers. A healthy rivalry is being shown, and to promote this it is proposed to offer substantial prizes. The result will be a splendid object lesson in the natural produce and resources of the colony, particularly as a food producing factor of the world.

A number of selling concessions have been granted to exhibitors, but, as far as possible, such concessions have been limited to novelties and uncommon goods, and to goods as are not generally obtainable in the ordinary course of trade.

The exhibition grounds are connected with the railway system of the colony by a private siding, which is brought in from Addington and through the back of Hagley Park. This railway siding has two branches, one toward the main tram-car line on Papanui Road, and space which separates the main building from the machinery hall.

This private siding is at present a great convenience for the transport of building materials to the grounds, and later on it will be found most convenient for the delivery of exhibits. The railway siding does away with any unnecessary handling of sea-borne exhibits; these will be loaded into trucks from the ship's slings at Lyttelton, and without any further handling, delivered at the exhibition grounds.

To meet the passenger traffic to and from the exhibition grounds, a special tramway siding is being laid down. A loopline will leave the main tram-car line on Papanui Road, and from there it will come down to the exhibition grounds via Peterborough Street, passing along Park Terrace for about four chains and rejoining the main Papanui line in Salisbury Street.

GREEK TOBACCO CROP

Consul George Horton, of Athens, writes that the Greek tobacco crop of 1905 was the largest Greece ever harvested—about 198,000,000 pounds. The Sary brand crop was about 11,000,000 pounds. This brand is in great demand for Egyptian cigarettes. Alexandria, Egypt, has 25,000 88-pound bales of inferior grade in storage. Most of Egypt's cigarettes are made by Greeks, because cigarette paper is too expensive in Greece, where it is a Governmental monopoly. This has led to the use of a cheaper, hence inferior, paper, and the loss of an industry indigenous to Greece, but which has gone over to Egypt, for most of the famous cigarette makers of Egypt are Greeks.

BRAZILIAN STEAMER

Ambassador Griscom reports from Brazil that the Brazilian Lloyds Steamship Co. has established a monthly passenger steamship service between Rio de Janiero and New York, the first steamer, Goyas, 4,000 tons, sailing August 25th.

A LAKE OF SOAP

There is said to be a lake of soap in Washington, unlike any other lake, its waters being stronger and containing more mineral matter than the famous Carlsbad waters in Germany. When the head is shampooed with Soap lake water, a white lather is created which thoroughly cleanses the scalp. The cowboys clean their saddles by throwing them into the lake. There are said to be authenticated instances of cures of the most obstinate cases of rheumatism and other maladies. The lake is two and one-half miles long and three-fourths of a mile wide.

NEW ZEALAND

The governor of New Zealand stated in the opening of Parliament at Wellington that the promotion of trade with the United States and Canada would be one of the subjects considered during the session. The members would also be asked to consider proposals for a renewal of subsidies for the San Francisco and Vancouver mail service. The speech referred sympathetically to the proposals of reciprocity with Australia, and expressed confidence that the coming New Zealand exposition would compare favorably with old-world methods.

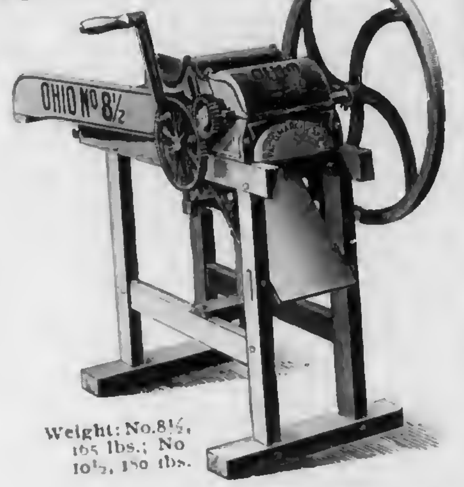

Fig. 779—Nos. 8½ and 10½.

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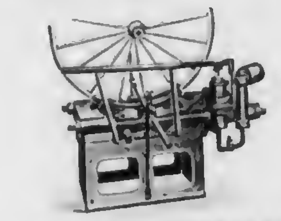

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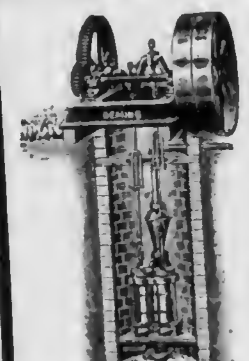

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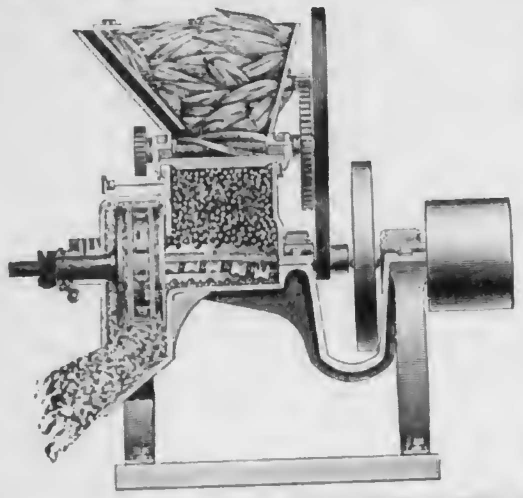

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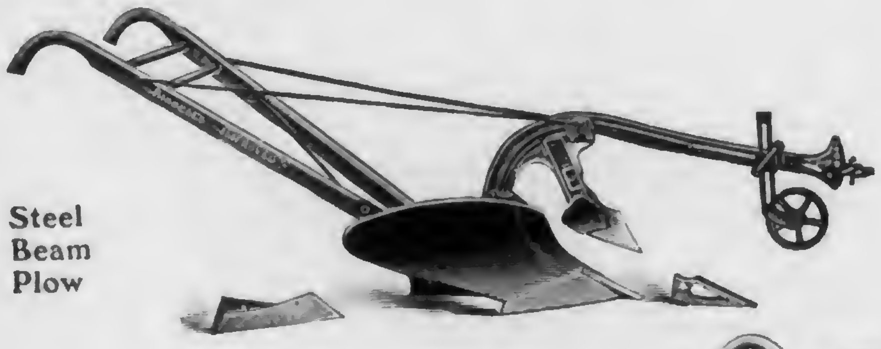

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